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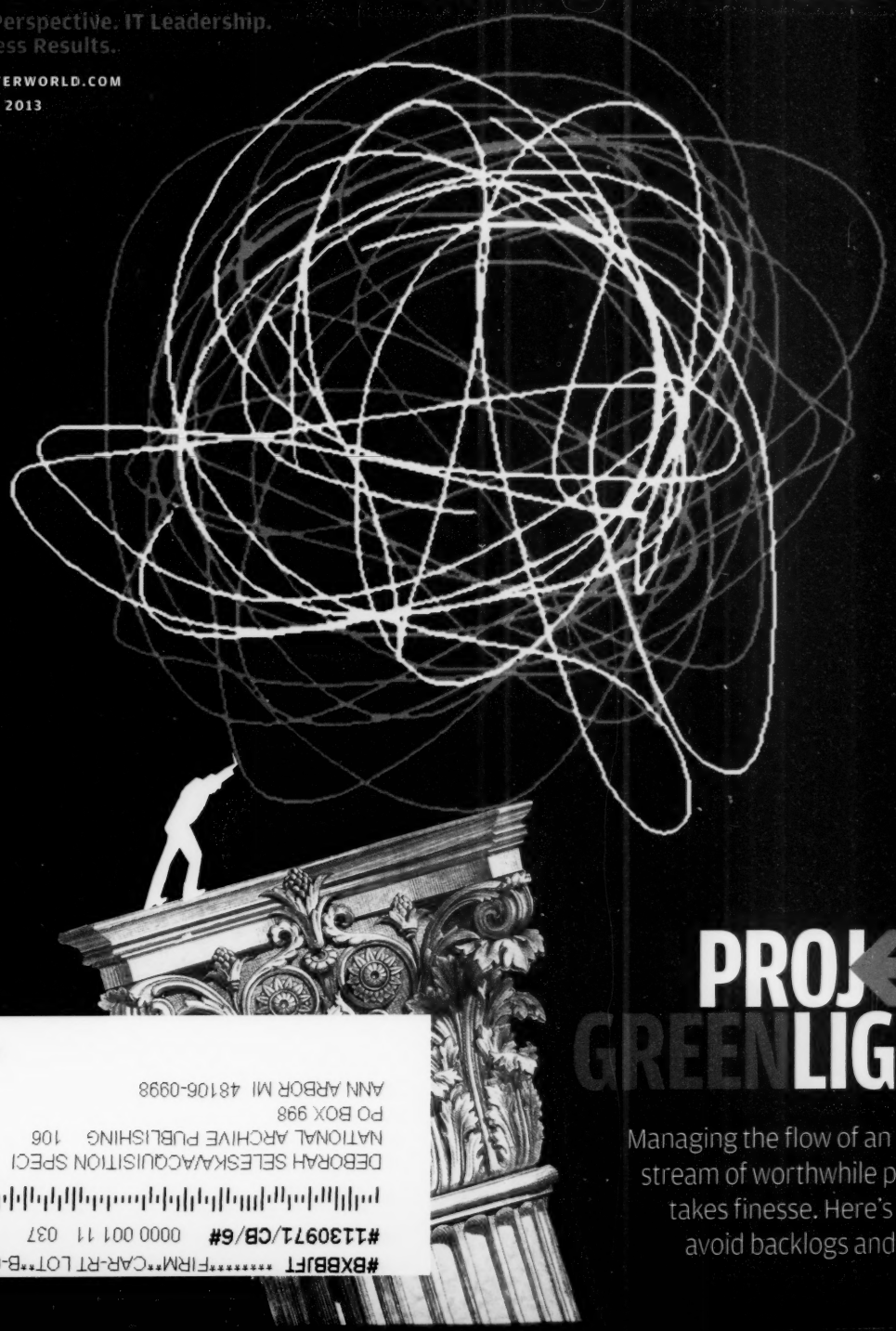

PROJECT GREENLIGHT

Managing the flow of an infinite stream of worthwhile projects takes finesse. Here's how to avoid backlogs and chaos.

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intel inside Xeon

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[2]Results achieved by comparing recommended system to IBM System x3650 (with Xeon® E5205) using IBM Systems Consolidation Evaluation Tool (https://roianalyst.alinean.com/stgi/). The comparison is between IBM System x3650 M4 and x3650 (does not include x3650 M2 or x3650 M3).

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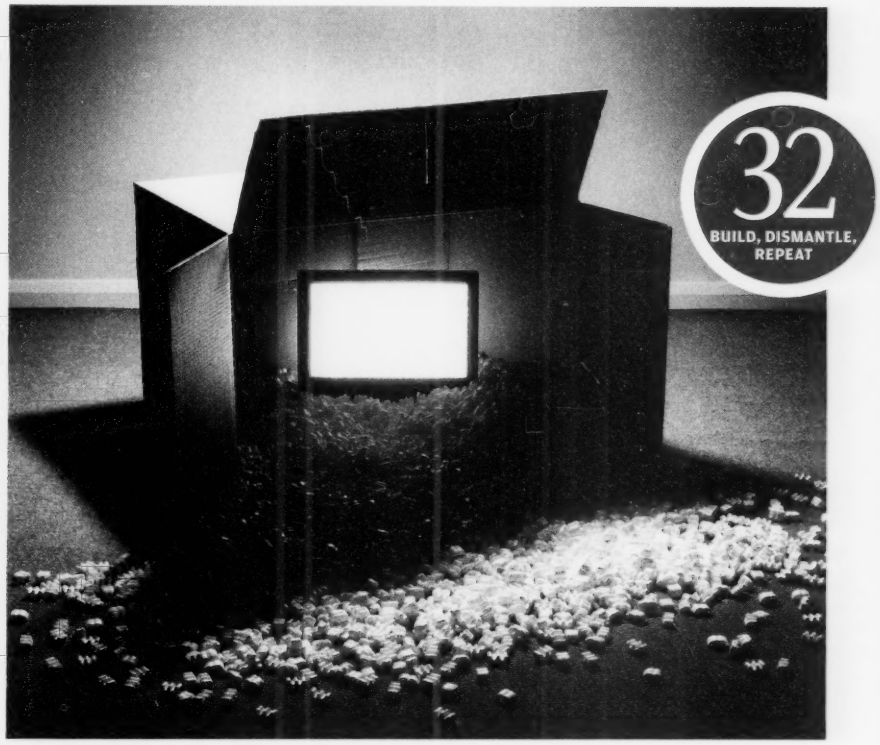

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SMARTPHONES AT WORK

BlackBerry Customer Forgoes BYOD

BUCKING THE BYOD TREND, Canadian Tire is issuing BlackBerry Q10 and Z10 smartphones to its corporate employees.

An overwhelming majority of the Toronto-based company's 3,000 corporate users requested the Q10, which features a physical qwerty keyboard, as a replacement for older Bold or Curve devices, said CTO Eugene Roman. But some said they preferred the Z10, which has a touchscreen keyboard. Canadian Tire made BlackBerry Z10s available to employees several weeks ago and began issuing Q10s early this month.

The company isn't convinced that a bring-your-own-device model is secure. "An email can send a virus into your core infrastructure," Roman said. "Right now, we think BYOD is interesting but not ready for the mainstream."

So far, the biggest selling point of the new Z10 and Q10 smartphones is their long battery life, said Roman, noting that the BlackBerry devices last 10 to 12 hours on a single charge.

Canadian Tire uses BlackBerry Balance, a feature of the BlackBerry Enterprise Service 10 mobile device management system, to keep the work and personal data of Q10 and Z10 users in separate areas on the BlackBerry 10 operating system. If necessary, IT can wipe the work data from a lost or stolen device and leave the personal data intact.

Canadian Tire offers its customers a BlackBerry mobile app that lets users browse the company's products online, find stores and check product availability. The app received 20 million mobile visits last year.

– Matt Hamblen

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CONSUMERIZATION OF IT

Half of World's Companies to Embrace BYOD

About half of the world's companies will adopt bring-your-own-device programs by 2017 and will stop providing computing devices to employees, a new Gartner report predicts.

Ultimately, only 15% of companies will never move to a BYOD model, while about 40% will offer a choice between BYOD and employer-provided devices, according to the report, by Gartner analyst David Willis.

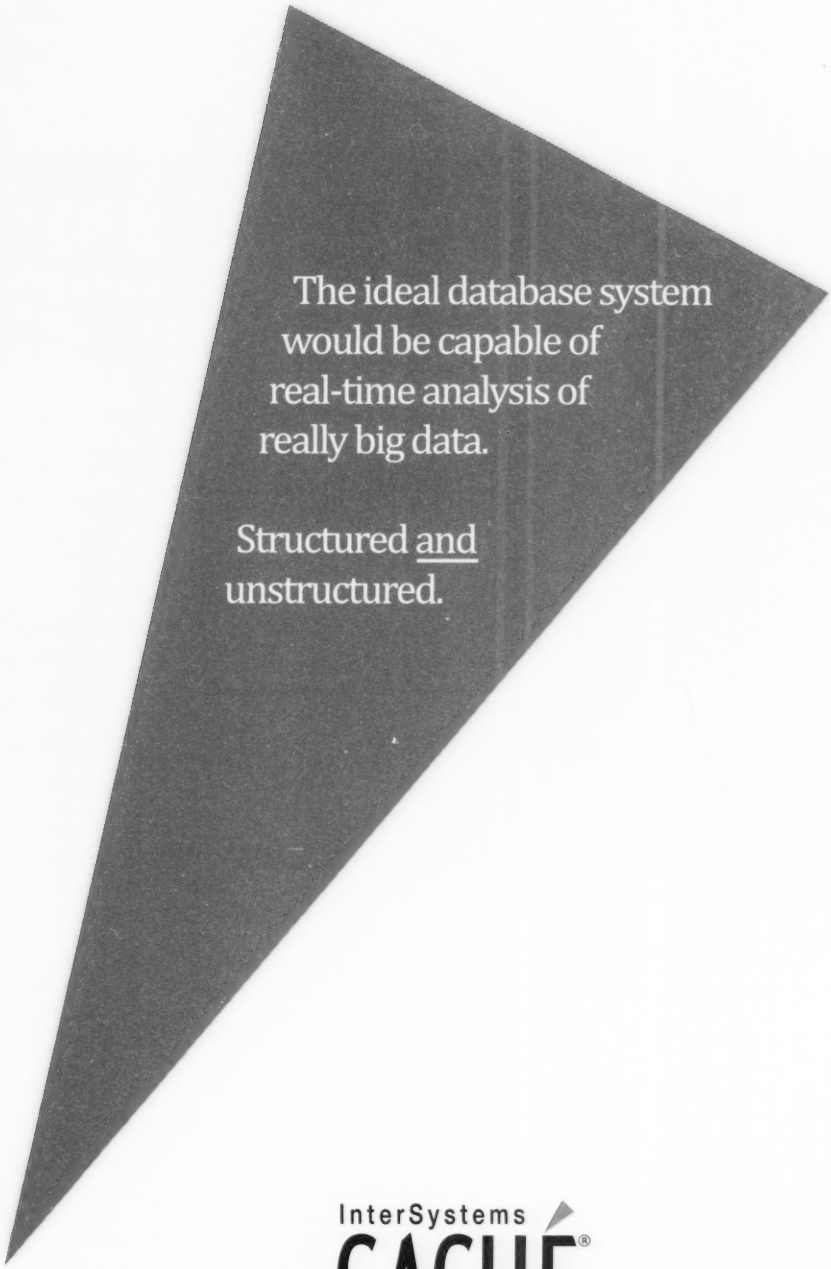
While mobile computing improves productivity, the average cost of company-provided devices is high: more than $600 per employee per year. The ability to cut those costs combined with opportunities to increase employee satisfaction, among other things, has helped drive the BYOD movement, Willis wrote.

Most of the IT executives surveyed by Gartner think well of BYOD, but only 22% said that they "believe they have made a strong business case" for mobile projects, according to the report.

One challenge of BYOD is figuring out the best way to reimburse employees for their out-of-pocket expenses, according to the report.

Other considerations include security concerns, the cost of management tools, the need for application licenses and "more potential problems for an overtaxed help desk," Willis wrote.

– CHRIS KANARACUS, IDG NEWS SERVICE



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BETWEEN THE LINES
By John Klossner

PROCESSORS

Shrinking Chips Challenge Moore's Law

INTEL WILL continue to fulfill Moore's Law for the foreseeable future, but keeping up with it is becoming more of a challenge as chips get smaller, according to a company executive.

Moore's Law states that the number of transistors that can be placed on silicon doubles every two years, making it possible to continually improve chip performance and add new functionality. Using Moore's Law as a baseline, Intel for decades has added transistors while reducing the size and cost of its chips.

"I'm not here to tell you that I know what's going to happen 10 years from now. This is much too complicated," said William Holt, an Intel executive vice president and general manager of the company's Technology Manufacturing Group, in a recent speech. But, at least for the next few generations of chip manufacturing processes, "we are confident we don't see the end coming," he added.

Moore's Law is based on an observation in a 1965 paper by Gordon Moore, who co-founded Intel in 1968. It has held true for years, but Holt said that manufacturing smaller chips with more features is difficult. "There are just more steps, and each one of those steps needs additional effort to optimize," he said.

To keep up with Moore's Law, Intel has turned to new tools and innovations. For example, the company started using strained silicon with the 90-nanometer and 65nm manufacturing processes, and then introduced gate-oxide material — also called high-k metal gate — to the 45nm and 32nm processes.

Further reducing chip sizes will require new ideas, and many new ideas are being put to the test in university research funded by chip makers and semiconductor industry associations, Holt said.

Some of the ideas revolve around the feasibility of replacing silicon with new materials. For example, he said, "using germanium instead of silicon is certainly a possibility that is being researched."

– Agam Shah, IDG News Service

Micro Burst

Oudated technology and HIPAA compliance are costing U.S. hospitals

$8.3 billion

in lost revenue and productivity.

MICROSOFT

$300M Nook Investment Delivers Little

Microsoft has gotten next to nothing from its $300 million investment in Barnes & Noble, analysts said, but it may reap some rewards as it prepares to ship smaller tablets.

In April 2012, Microsoft and the bookseller announced a new, co-owned subsidiary that included Barnes & Noble's Nook business. That bought Microsoft a 17.6% stake in the company. Other parts of the deal settled patent disputes between the two, promised Nook royalties to Microsoft and yielded a Nook app for Microsoft's "Modern" tiled user interface.

A year later, Microsoft has "gotten nothing up to now," said Carolina Milanesi, a Gartner analyst.

But observers say the deal could still pay off in the form of a new generation of smaller, less expensive Windows tablets that would be better suited to e-reading than current larger models are. A 7-in. or 8-in. tablet "is a great form factor" for e-reading, Milanesi said.

Other analysts agreed that the Nook Media collaboration could pay dividends if Microsoft or one of its partners introduces such a device.

"This was more an investment in an organization," said IDC analyst Bob O'Donnell. "How that continues to play out we'll just have to see."

– GREGG KEIZER

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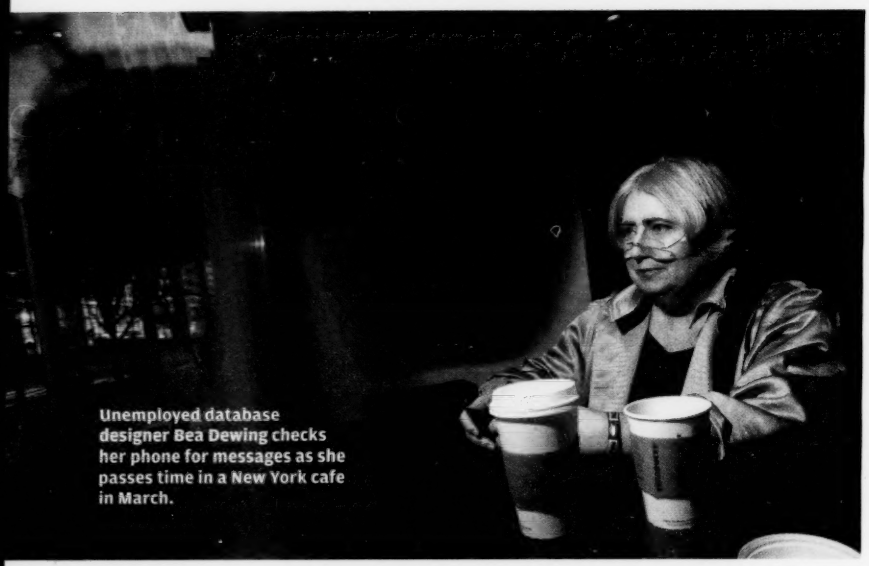

Unemployed database designer Bea Dewing checks her phone for messages as she passes time in a New York cafe in March.

IT Vets Say Job Offers Go to Cheaper Labor

Tech pros with 15-plus years of experience say they're getting bypassed in the job market as employers hire foreigners and young people. By Grant Gross

TECH COMPANIES have long called on Congress to ease restrictions on high-skill immigration, arguing that qualified tech workers are in short supply in the U.S. But veteran IT professionals who say they can't find jobs question that analysis of the labor market.

More than a dozen longtime IT workers, contacted through the Programmers Guild and high-skill immigration critic Norm Matloff, computer science professor at the University of California, Davis, said a glut of low-paid H-1B visa holders and recent graduates is keeping them unemployed or underemployed.

A recent study from left-leaning think tank Economic Policy Institute seems to back up such claims, finding that even though "there is a robust supply of domestic workers available for the IT industry," guest workers "make up a large and increasing portion of the IT labor market."

The Information Technology Industry Council, a tech trade group, called the EPI study "replete with faulty data, exaggerated claims, and plain wrong facts." It relies on data compiled in 2009, when the U.S. was still recovering from a recession, said Robert Hoffman, the ITI's senior vice president for government relations, in a blog post.

Unemployed IT workers say otherwise.

For instance, 50-year-old Robert Wade, a 27-year IT veteran with a bachelor's degree in electrical engineering and a master's in industrial engineering, has worked for only 10 of the last 40 months.

The Indianapolis resident has sought tech jobs in Texas, Florida, Tennessee and other states. "I've even offered to pay for the move, and still nothing," he said.

In addition to facing competition from lower-paid workers, job-seeking IT veterans say they must deal with employers that set specific job requirements that seem to be designed to weed out older workers.

John Donaldson, a software developer who's been out of work since October, said he is getting no job offers even though he has kept up with Hadoop and other hot technologies and has experience in SQL, Java and data modeling and more. Many companies are "overly picky," passing over veteran workers whose skills are similar to but not exactly the same as those posted, said Donaldson, 51, of Oakland, Calif.

Bea Dewing, 61, has strong experience in data modeling, a skill that's said to be hot, but she's been unemployed since December. She has worked in the tech industry since 1986, as a programmer, a systems analyst, a database designer and a project manager.

Dewing said she moved to New York City to work on a project but was laid off and replaced by a foreign worker.

Greg Steshenko, who immigrated to the U.S. in 1987 from what was then the Soviet Union, hasn't worked steadily since 2002. The 51-year-old Silicon Valley resident has a master's degree in electrical engineering and bachelor's degrees in electrical engineering, biochemistry and molecular biology. He has held engineering jobs in nanotechnology, software and hardware design.

"Since 2002, I had just very brief periods of temporary employment as an engineer-consultant, hotel clerk and a Home Depot associate," he said. "I'm overeducated and overexperienced."

Steshenko said it's difficult to try to guess what skills companies will want, because technology is constantly changing.

"You cannot get that experience unless you are hired. And you cannot get hired unless you have that experience," he said. "It is the chicken-and-the-egg situation." ◆

Gross *is a reporter for the IDG News Service*

> Since 2002, I had just **brief periods** of temporary employment as an engineer-consultant, hotel clerk and a Home Depot associate."
>
> UNEMPLOYED IT PROFESSIONAL FROM SILICON VALLEY

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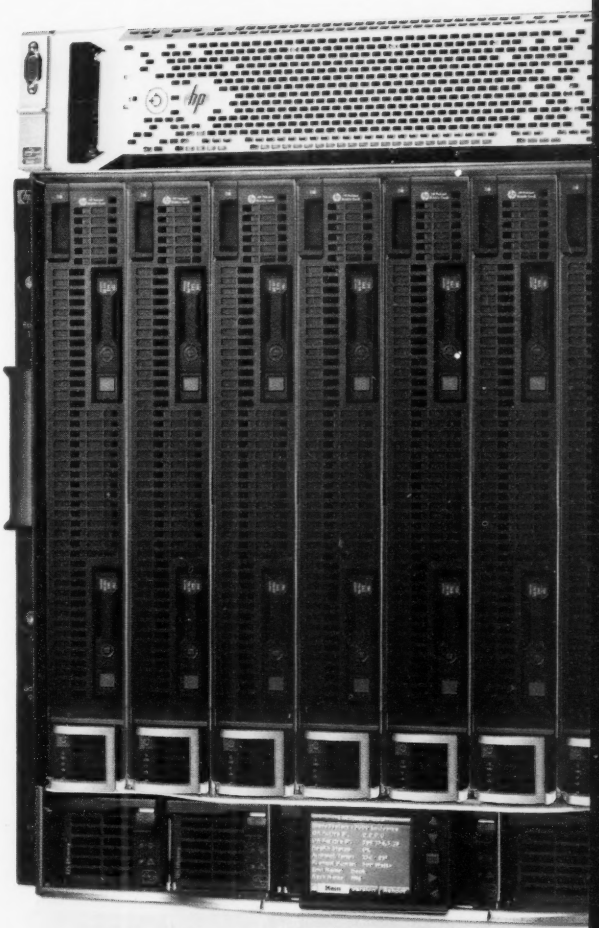

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Chinese Hackers Master the Art Of Lying Low

State-sponsored cybercriminals use simple weapons to infiltrate U.S. networks, and then quietly steal data while remaining undetected. By Jaikumar Vijayan

CHINA'S REMARKABLE SUCCESS at infiltrating U.S. government, military and corporate networks in recent years shouldn't be seen as a sign that the country is gaining on the U.S. lead in cybertechnology expertise.

State-sponsored hacking groups in China are no more — or less — sophisticated than criminal and politically motivated cybercrime gangs elsewhere. The difference, experts say, is how the Chinese hackers target victims, their persistence and their ability to lie low and secretly maintain access to breached networks for long periods of time.

The U.S. Department of Defense earlier this month, in a departure from its usually thinly veiled innuendos, openly accused state-sponsored hacking groups in China of launching cyberattacks aimed at extracting information from the U.S. government, military and businesses.

Outside of the Pentagon, such allegations aren't new. Security experts and major corporations like Google and Microsoft have long maintained that hackers in China use cyberattacks to steal military, government and corporate secrets.

The Chinese government has denied that it coordinates hacking campaigns.

However, said Anup Ghosh, CEO and founder of security firm Invincea, "the acknowledgement by the Pentagon is a first step in publicly declaring the threat."

Though the tone of the government's report on Chinese cybercrime is ominous, the reality of cyber expertise in the country is more mundane, say security experts.

"It's not that the Chinese have some unbeatable way of breaking into a network," said John Pescatore, director of emerging security trends at the SANS Institute. "What is innovative is their targeting."

Pescatore said U.S. contractors and defense and high-tech companies that could be targets of Chinese espionage efforts should be less concerned about the origin of the attacks than about the need to shut down basic vulnerabilities and fix configuration errors in their corporate networks.

While China likely does have an arsenal of attack techniques and zero-day assault tools, it usually "uses the lowest level of tools and the easiest means to get in" to networks, said Dan McWhorter, managing director of threat intelligence at security firm Mandiant. If the Chinese hackers do come up against a sophisticated company, "they will up their game," he added.

Many of the hackers operating out of China have become adept at stealing legitimate corporate network credentials and then using them to log in as an employee, McWhorter said.

After they strike, the attackers are quick to erase all signs of a break-in, making it difficult for a company to even know that it was compromised. Therefore, the hackers are able to extract a lot of data without attracting suspicion, McWhorter said.

If a company does discover such a breach, IT managers must exercise great care not to tip off the hackers, he said.

Unlike the exploits of many European cybergangs, most of the malicious hacking activity originating in China focuses on industrial espionage and theft of trade secrets. McWhorter said Chinese hackers generally don't bother taking financial data and other personal information from individuals. ◆

Jeremy Kirk *of the IDG News Service contributed to this story.*

"It's not that the Chinese have some unbeatable way of breaking into a network. What is innovative is their **targeting.**"

DIRECTOR OF EMERGING SECURITY TRENDS, SANS INSTITUTE

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THE Grill

Michelle McKenna-Doyle

This CIO is bringing analytics to the gridiron to improve player safety.

What's your favorite sport (after football)? Golf to play; NASCAR to watch.

Android, iPhone or BlackBerry? iPhone

What's your favorite vice? Red wine. I'm heading out soon for a trip to the wine country.

What's your favorite nonwork pastime? Reading.

What do you consider to be the best book ever? *To Kill a Mockingbird*. I love classic historical fiction.

Is there something not many people know about you? I love to drive really fast cars and once dreamed of being a racecar driver.

HOW DO YOU KEEP *Wi-Fi up and running for 80,000 fans at the Super Bowl? That's just one of the challenges Michelle McKenna-Doyle faced this year as CIO for the National Football League. These days, analytics is driving innovation at the NFL, and McKenna-Doyle, 47, is leading the charge — whether the job is collecting statistics with sensors that track players on the field or monitoring player safety through lab analysis of helmets that took a pounding during games.*

What IT-driven innovations are you focused on right now? The technology coming along is creating a way to, perhaps, innovate in how the game itself is played. And certainly in player health and safety — how we can track what is happening and the overall wellness of players is one of our primary focuses.

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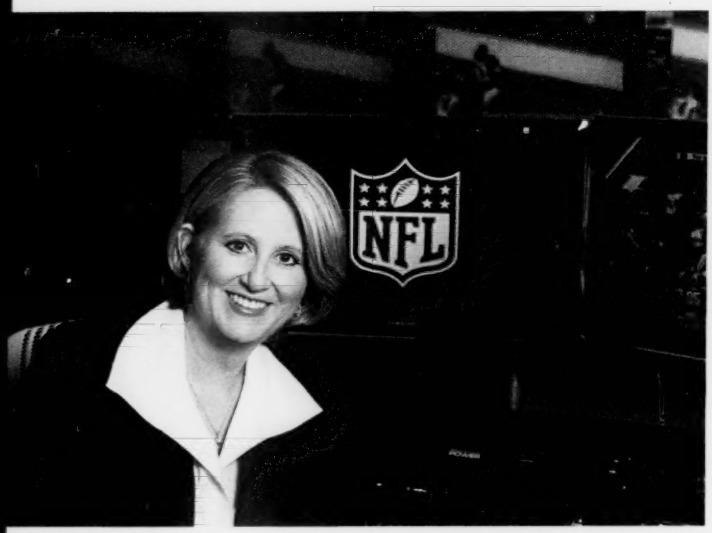


> **I speak the language of the business first and the language of technology second. I am a translator.**

Our chief medical officer is bringing forth all sorts of new ideas of things that they want us to test.

We're also testing next-generation statistics, which uses instrumentation to track players' movements on the field and collect stats. All of that is under way, and you'll see more of that in the next year or so.

Do you plan to capture every movement of every play on the field with instrumentation? In tests you can watch the trail of a player and you can overlay that with the play called. You can see the route they were supposed to run and what they actually ran. Coaches love the thought of being able to take that and have one-on-one coaching with the players.

In your career, you have held executive roles outside of IT. How has that helped you in your role as CIO? At Disney, I started in finance and worked through all of the different divisions. That gives me an advantage in terms of being a successful CIO. I speak the language of the business first and the language of technology second. I am a translator.

Do you see most CIOs today coming from other parts of the business, as you did, or coming up through the IT ranks? Unfortunately, it's people coming from other parts of the business. That's disheartening to the smart people I have working for me in technology. They need visibility. My team did a leadership assessment, and several people put in their plan that they wanted to be CIO but none of them knew how they were going to get there.

Will you rotate aspiring CIOs into other areas of the business to give them that visibility? Yes. In fact, the NFL just started a rotational program. But if your bench isn't deep enough, you can't afford to let a technical skill move, and it's hard to get that deep bench because IT budgets are constrained. It takes courage to say, 'If I'm going to have a successor, you need to bring someone in so I can let this person rotate.'

How else is IT driving innovation and adding to the bottom line? Analytics is where you drive top-line revenue. IT professionals have the ability to see a cross-section of the whole organization. You [could] have this division of the company pursuing this goal and that division pursuing that one, and they're not necessarily aligned. Because we're building both of those solutions, we can raise the issue and talk about where we're going to put all of our investment.

But does IT have time to look for those opportunities? It takes a willingness to do it and a leader who will give you the time to do it. If your day is spent analyzing equipment performance and you don't have a chance to do that kind of analysis, then how do you ever get there?

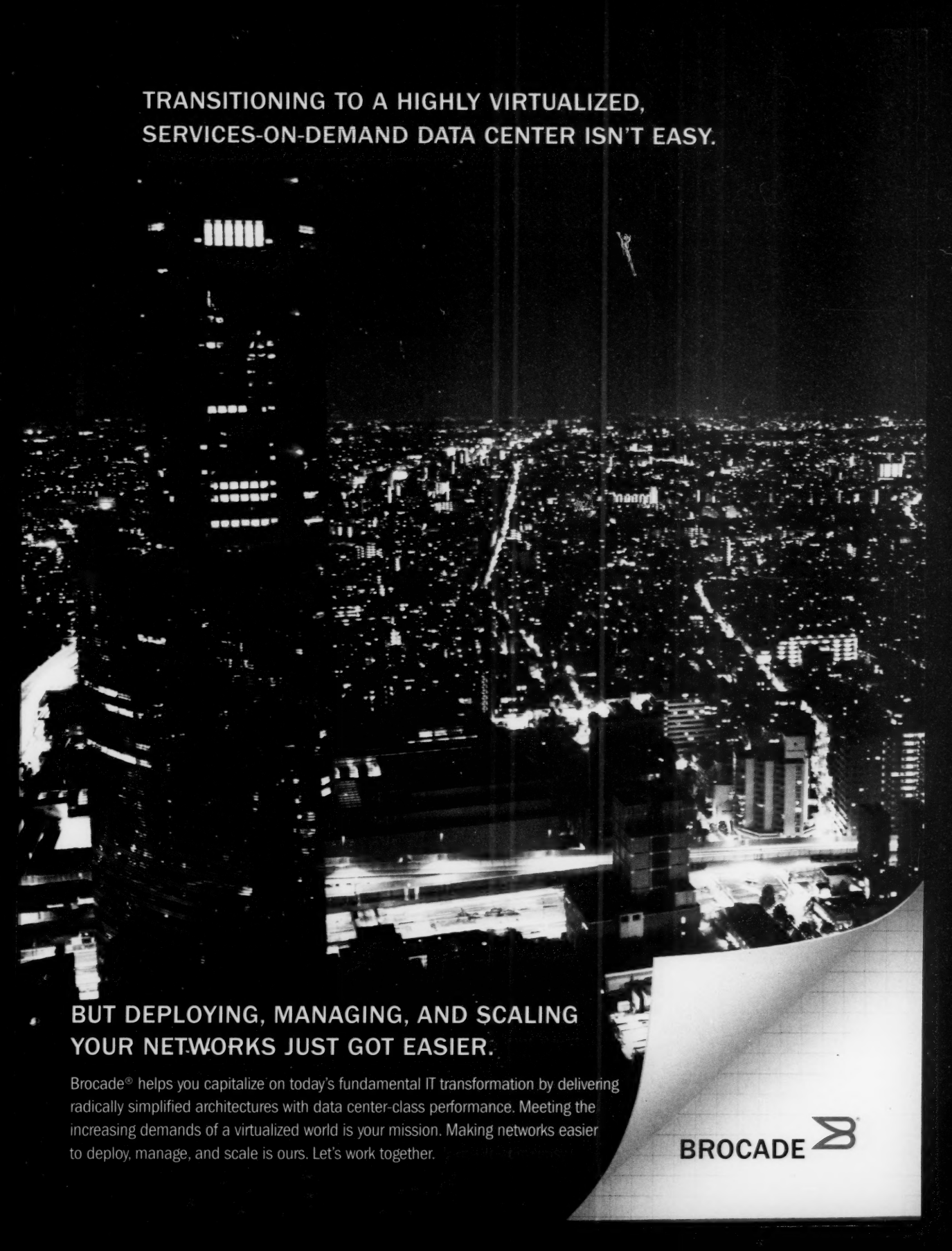
What I am trying to form at the NFL, as I did at Constellation Energy, is an IT-focused analytics job. Marketing has research, but IT holds the keys to all of that data. Not only do you have to train yourself on how to build good databases and how to build a data warehouse but also to understand the data well enough to know which things it makes sense to link together for the insight it gives you — that is something that an IT person can see and help prioritize.

What other analytics-focused projects are you driving? We're looking at player performance. [For example, when teams get ready for the draft] there's all types of data to look at around statistics and players and doing predictive analysis in terms of this person looks like this person and if I lose this person in the draft who's my next guy that's most like him. We pull that data together, keep it up to date and publish in real time. Scouts are just starting to use it.

How do you deal with connectivity and mobile in the stadiums? It's a big challenge for Wi-Fi. When you have 80,000 people all going at the same time it puts a challenge on connectivity. We're leading the charge on that and helping the stadiums figure out how they can keep fans connected.

If you're at the Super Bowl, why would you be watching your phone? It's a generational thing. My 15-year-old daughter sat next to me at the Super Bowl and she was on her phone the whole time. She loves football; she was very excited about it. But she was just as engaged with talking to her friends online about what she was seeing. That's not going to change. It's only going to become more prevalent.

– *Interview by* **Robert L. Mitchell**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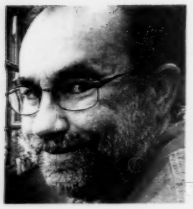

OPINION

S.J. VAUGHAN-NICHOLS

Google Glass Will Be A Big Deal, So Deal With It

Yes, Glass will change how we think about privacy in public places, but that's nothing new.

PERHAPS NO GROUP has earned a borderline obscene pejorative as quickly as the wearers of Google Glass. I mean, the product, not due for release until early next year, is seen in the wild today only on the few thousand who are its early testers. And yet we already have the term "glasshole." Google Glass has also been banned ahead of its release. This all seems to stem from the belief, voiced by writers such as Jason Perlow, that Google Glass is evil, since "it's a 'stealth' recording device."

My advice to anyone freaking out over Glass: Get over it.

Sure, there is something unsettling about the evolution of Glass. Eventually, you are going to have to look really closely to tell whether a pair of eyeglasses is computerized. And there's no question that Glass can be used in socially unacceptable ways. But personally, I'm a lot more bothered by the constant cracking of websites holding personal information than I am by the idea that someone could record me in the restroom.

No question: Glass is going to change how we think about privacy in public spaces. But such rethinking has already been necessary for years. Smartphones required it. For that matter, so did the invention of the camera.

In the past few weeks, I've seen people using smartphones to take photos, record videos, tweet and text during live performances in Broadway theaters and at rock 'n' roll music venues. In every restaurant I've patronized, at least a fifth of the people were locked into their tablets and smartphones, even as the people at the table with them were talking. I don't like it, and I'm not one of those people. But the genie is out of the bottle. Google Glass is just the next step toward the collapse of the barrier between the private and the public.

There's always good and bad with these sorts of developments. Sure, phone cameras brought us upskirt photos, but they also were the means of exposing the prisoner abuse in Abu Ghraib. And there's nothing new about personal computing in the public sphere. There isn't even anything new about wearable computers. I first used a Xybernaut Poma Wearable PC in 2002. The technology made you look like a member of the Borg collective from *Star Trek* and was about as popular as being assimilated. With Google Glass, though, resistance might be futile.

With Google Glass and its imitators, that is. Other companies, such as Apple, Baidu and Telepathy, are building their own wearable computers. Indeed, I'll be very surprised if Google Glass is the first such product to market. And the technology won't be for nerds only. There are just far too many ways Google Glass and its cousins can be useful for this to be anything but a success. When you're conducting a job interview, you can unobtrusively look at the applicant's résumé on LinkedIn or check what he's been posting publicly on Facebook. Your mechanic will be able to throw schematics onto his heads-up display as he works on your engine.

So stop crying about Google Glass and get used to how it's going to accelerate the blending of the public and the private. Yes, it's scary. But all sea-change technologies are frightening at first. The sooner you adapt, the sooner you'll be able to profit from it instead of being paralyzed by it. ◆

Steven J. Vaughan-Nichols has been writing about technology and the business of technology since CP/M-80 was cutting-edge and 300bps was a fast Internet connection – and we liked it! He can be reached at sjvn@vna1.com.

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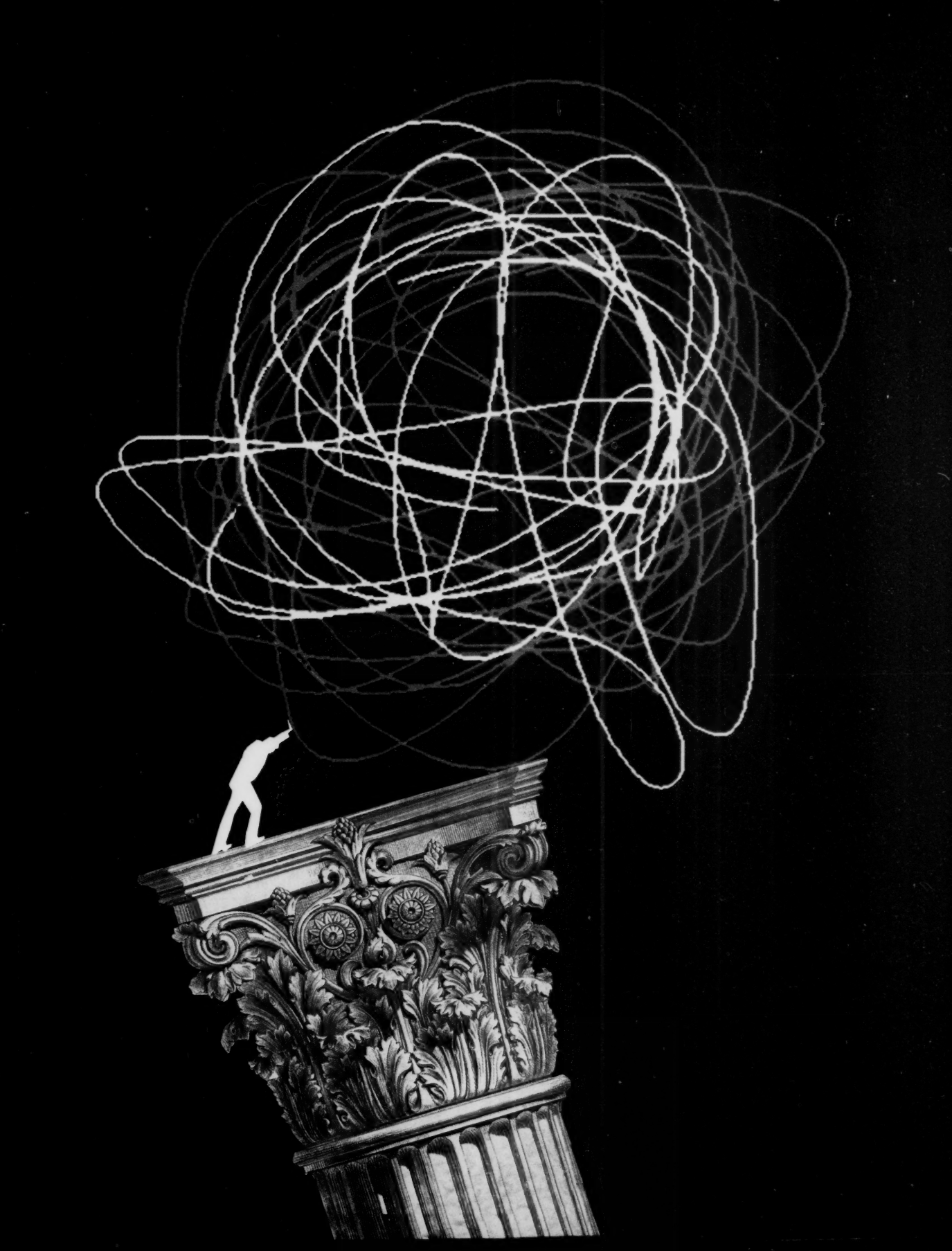
PROJECT LIGHT

Managing the flow of an infinite supply of worthwhile projects through a finite IT operation takes finesse. Here's how to avoid the backlog and the chaos.

NOT LONG AGO, IT consultant Mark A. Gilmore was called in to help an IT department that was struggling with project overload. "They'd gotten this kind of attitude — the executive vice president calls it 'Burger King Syndrome,'" he recalls. "Their approach was, 'You can have it your way.'"

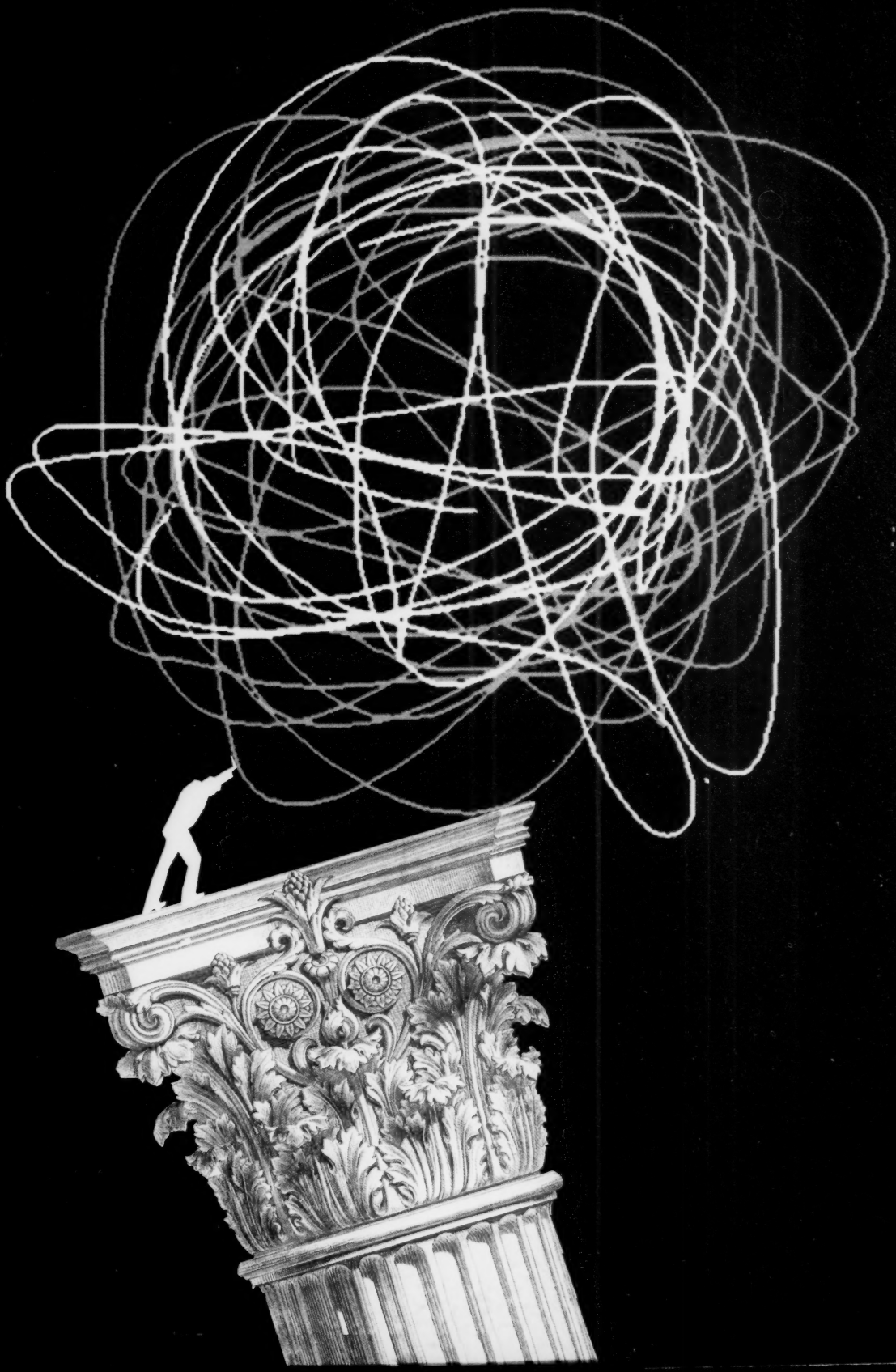


PROJECT GREENLIGHT

Managing the flow of an infinite supply of worthwhile projects through a finite IT operation takes finesse. Here's how to avoid the backlog and the chaos.

BY MINDA ZETLIN

NOT LONG AGO, IT consultant Mark A. Gilmore was called in to help an IT department that was struggling with project overload. "They'd gotten this kind of attitude — the executive vice president calls it 'Burger King Syndrome,'" he recalls. "Their approach was, 'You can have it your way.'"



The business executives believed IT could supply whatever they wanted, whenever they wanted it. Salespeople had gotten into the habit of asking the development team to create applications within a week to fulfill promises they'd made to customers. As a result, IT employees were spending about 80% of their time reacting to crises or struggling to meet impossible deadlines rather than calmly planning their workloads, says Gilmore, president of Wired Integrations in San Jose. In the meantime, basic technology improvements weren't getting done. For example, Gilmore was surprised to discover that, though the company had a large data center with several hundred servers, there was almost no virtualization.

"You can't operate that way because it creates chaos," he says. "The quality of the work gets degraded. People's happiness level gets degraded, and it becomes a miserable environment."

Unfortunately, this very situation has become the norm in many IT departments. "It turns out to be a chronic problem," says Gartner analyst Robert Handler, who notes that his firm's research suggests that at least one-third of funded technology projects are currently in a backlog, waiting for IT to start on them. That's not a good sign, he says — especially since there's strong evidence that overloaded IT professionals are measurably less productive than ones with reasonable workloads.

An improving economy is probably to blame for the added strain. In *Computerworld*'s Forecast 2013 survey, 43% of respondents said they expected their IT budgets to rise this year, up from 36% last year. Sixty-four percent anticipated making a major IT investment. At the same time, 59% reported that containing costs was a priority. In the real world, that translates into a growing number of projects flowing through IT departments whose staffing levels have remained flat.

"Over the years, there had been pretty steady improvement, with backlogs going down and developer productivity going up," Handler says. "The most plausible explanation is that the credit collapse of 2008 led to companies stopping everything they possibly could." In 2010, he notes, IT productivity again began to slip, leading him to suspect techies were once again getting overloaded. Sure enough: "We started looking at other data sources and saw backlogs building up," Handler says. Piling more and more work onto IT is like pouring too much water into a funnel, he says: It works for a while, but then "all of a sudden there's too much and it makes a big mess."

A High-Level View

How do you stop the madness? It begins with a long-term, high-level approach that takes IT's most important goals into account. Unfortunately, many IT shops aren't taking such an approach. "When I stepped into this role a couple of years ago, we probably had more than 200 projects going at any given time, but we were responding to a lot of quick-reaction type things. There wasn't much of a coherent strategy that linked all those things together," says Joe Mahaffee, executive vice president and chief information security officer at Booz Allen Hamilton, a management and IT consultancy in McLean, Va., that had revenue of $5.86 billion in 2012.

So Mahaffee and his team worked with corporate leaders to identify seven strategic initiatives they believed would be important and then plan what needed to be done to complete those projects within a couple of years. For instance, a decision to move to unified communications allowed the firm to stop spending money on extensive PBX systems. "Now if we're modernizing an

Should You Reserve Some IT Capacity?

IT'S ALWAYS A BAD IDEA to plan more projects than your IT department has the capacity to carry out. But should you plan substantially fewer, keeping some IT work hours in reserve for contingencies?

That's what Gartner analyst Robert Handler advises. "In theory, if everyone came to the table during budget time with information on all the systems they need, it might be possible" to plan to work at full capacity, he says. "But a week or two after budgets are done, there are already a lot of requests for new stuff. We're in a complex world and there are changes constantly coming from markets and legislature. They destroy the predictability of projects."

Few IT operations are effective at dealing with the unpredictable nature of their work, says Handler. So he looked at other fields for inspiration. He found it in new product development. "Their response is to maintain reserve capacity for uncertainty," he says. He believes IT departments should do the same.

"Some business leader will say, 'We need this project to do business,' and if the CIO says, 'No, we can't, we're at capacity,' the answer will be, 'Then we'll get it elsewhere because we need it!' I suggest you reserve capacity for that situation." IT's goal should be to run at 80% of capacity, reserving the extra 20% for "things that come out of nowhere," he says.

Todd S. Coombes, executive vice president and CIO at ITT Educational Services, disagrees. "I've worked in environments where you set up contingencies, and I prefer to work based on historic data," he says. "If my data from past projects tells me I need to reserve a certain amount of time for unplanned activities, we'll work toward that, rather than assume we need to build in an extra 20% thinking things might go wrong." When people know they have that leeway, they tend to use it, he explains, adding, "I like to have things a little tighter."

Coombes says he uses detailed planning of every IT employee's time, and then has them track their activities as projects progress. "We can see historically what they actually spent their time on," he says. "It's kind of a feedback loop of planning and setting our capacity target, collecting actual information and then studying the data." That process allows for increasingly accurate planning.

This way, Coombes can plan for the unexpected on those projects that warrant it. "I don't know exactly what unexpected thing will happen, but historically I know it's going to be something," he says. "So we will build that into our capacity model. But it's based on what we know to expect."

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office, we invest in voice-over-IP technology instead," he says.

A strategic approach won't work without the support and participation of upper management. That's why many IT departments find that establishing a governing group of some sort — one made up of IT leaders and their upper-level business counterparts — is the first step to taming a chaotic IT workload.

"About a year ago, we changed the model of how we govern all IT projects," Mahaffee says. "There were four governance models that had some sort of contact with IT, and we centralized all that. Now we have one governing body providing direction and helping us define priorities." That group includes Mahaffee, Booz Allen CIO Kevin Winter and leaders from each of the company's marketing teams and major departments. All in all, the group is about 15 people who meet fairly frequently. "It helps me keep alignment with the business," says Winter. "Requests get funneled to this body so decisions aren't made in a vacuum. Everybody around the table gets a say in what gets funded."

Knowing When to Say No

More important, there is top-level backing for decisions about what doesn't get funded. Experts agree: The only way to put an end to IT overload is with the support of upper-level management. One of Gilmore's first acts at the company with the overloaded IT department was to decree that IT would not take on new projects for a time. And he did that with the complete support of the company's top executive, who had heard about enough problems with technology projects to know something had to change.

"If you try to start doing this without top-level support, business group leaders will go back to the top executives and say, 'IT isn't giving me what I need and therefore I'm not meeting the goals you set for me,'" he says.

"I typically am involved in conversations about projects that have to be delayed — but our business leadership is also involved," says Todd S. Coombes, executive vice president and CIO at ITT Educational Services, a postsecondary education company based in Carmel, Ind., with 140 campuses around the country. "Our group of high-level executives works together well, and we're all in the discussion before a decision is made. Typically, I don't have to deliver the message at that level. I may have to at a lower level, and I don't mind because I have the backing of my boss."

When you do have to say no to a project, your goal should be for the person who hears that *no* to feel good about the rejection. This is especially true if you're seeking to reduce or eliminate shadow IT operations, which are typically set up by business executives who decide to take matters into their own hands when they can't get IT to provide a desired technology quickly enough. "If they hear *no* without having bought into how that *no* was arrived at, they'll get it from someone else," Handler warns.

The key is transparency. "If you have a CIO deciding what gets done and what doesn't, the people who get their projects done will be happy," he continues. "The people who don't get their jobs done, if they think the CIO was fair and really thought it through, and if they understand the reasons for the decision, they'll still be happy 80% of the time."

You might be able to enhance that dynamic by getting your company's executives to literally sign on to the process, he adds. "If you get people to agree to both the objectives of the process and the process itself, they will tend to accept it because of a phenomenon called 'commitment consistency,'" he says. That effect doubles when people agree to something without feeling forced and have done something active to signal that agreement.

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>
> ROBERT HANDLER, ANALYST, GARTNER

Measuring IT Capacity

How do you know how much you can take on in the first place? How many projects are too many?

The only way to find out for sure is to track IT capacity — the number of working hours available in your department. "You have a mixture of both projects that create some kind of improvement and 'keep the lights on' activities," Coombes says. "That's the demand. We have to make sure we have enough capacity to handle those lights-on jobs, and then figure out how to provide capacity for the new projects."

Coombes uses what he calls the "capacity model" to plan IT employees' workloads. "We actually plan for the period before a release what we expect for individual people working on a project, based on their availability," he says. "We plan for a full eight-hour day, but we're not going to book eight hours of development time for a developer. We may need to set aside two hours for administrative tasks and answering questions that come up. So there might be six hours available for software development."

In that case, he says, the developer may be booked to work two hours on one project, two hours on a second and two hours on a third. And that's it. His capacity for the day is used up. "That's the only way to do it," Coombes says. "Otherwise, we tend to overbook people."

"There's often this perception that people who are working eight hours a day have another eight hours available," Handler notes dryly.

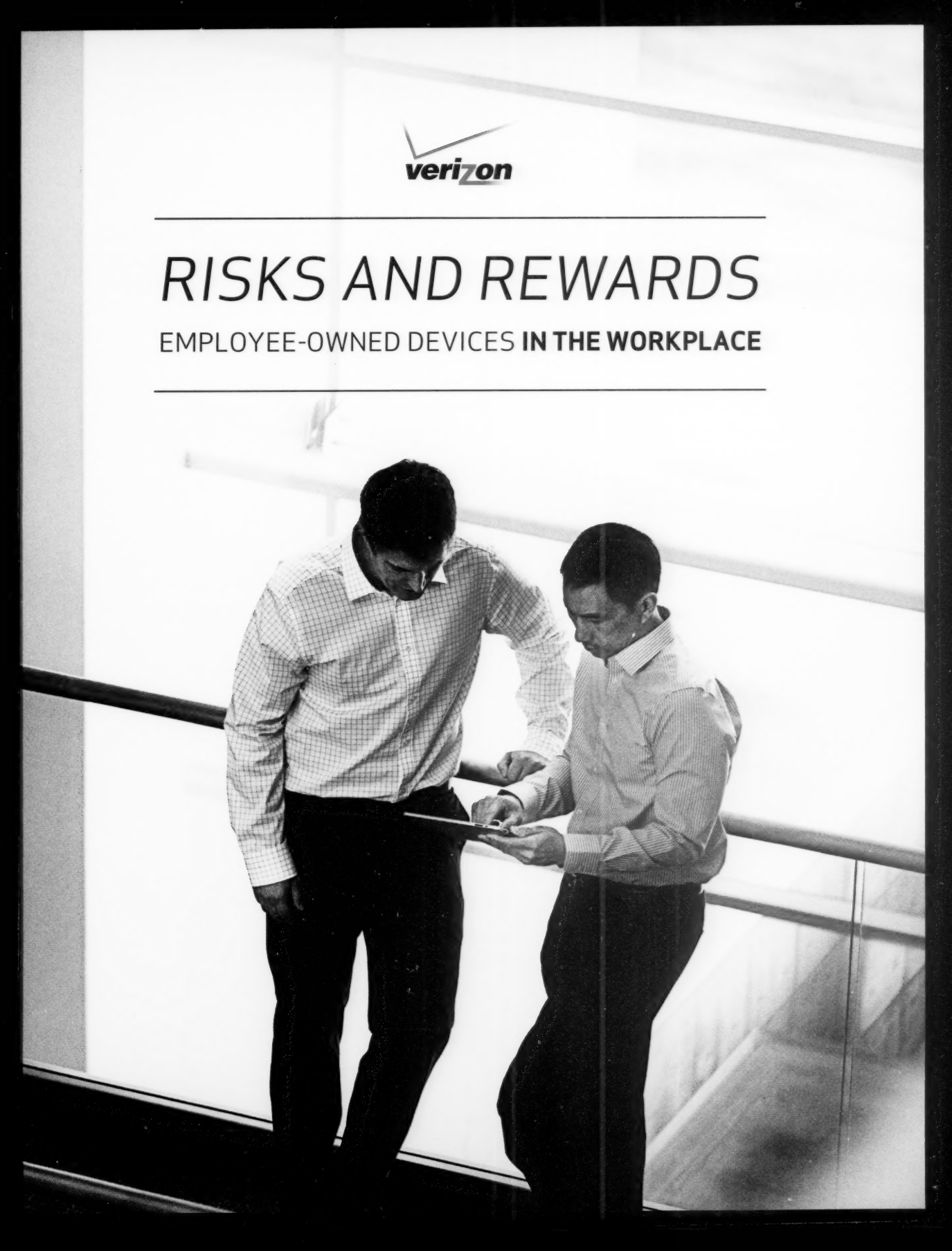
The Challenge of Key Employees

Measuring capacity alone isn't good enough, since not all IT employee hours are created equal. "You need to think about it in granular terms," Coombes says. "Not only hours of work but development hours, testing, architecture, project management."

Indeed, the need to find people with both the right skills and enough free time often stops projects in their tracks. And since technical work can often be outsourced, the missing resource is usually project management and/or business expertise.

"Are you comfortable outsourcing the project management function?" asks Bruce Myers, managing director at consulting firm AlixPartners. "Some companies are fine doing that, but others aren't. That is most often the limiting factor."

"You really are constrained not only by hours and functions, but also by the expertise you have in the business context," Coombes says. "That really is the key to understanding what a subject-matter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1 *Mobile Is the New Face of Engagement*, Forrester Research, Inc.
2 "The Latest Infographics: Mobile Business Statistics for 2012," *Forbes*, May 2, 2012.

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3 **http://newscenter2.verizon.com/press-releases/verizon/2012/verizon-is-top.html**

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Contractors Take Up the Slack

WHEN WORK simply has to get done and IT employees are overloaded, one solution is to outsource some of the work for a new project. Contractors have their limitations – it may not be appropriate to outsource project management, and they won't have a detailed knowledge of how a particular company functions or what its priorities are. But working with contractors does give many strapped IT departments a flexible workforce when projects pile up. "I've worked with a lot of companies who use the rule that one-third of IT project work is done in-house, and two-thirds is outsourced," reports Bruce Myers, managing director at AlixPartners.

For Mazda's North American operations, relying on IT contractors is a way of life, according to CIO Jim DiMarzio. This is partly because the auto industry in general strives to keep full-time head counts low, but using contractors also gives the IT department, which has 42 full-time employees, the ability to shrink and expand at will, says DiMarzio, noting that while his Hiroshima-based Mazda Motor Corp. is a $21 billion global business, the automaker's U.S. operation is relatively small.

"Because we knew we were head-count-constrained, we put together a strategy where most of our full-time employees are analysts and project managers," he says. "We want our staff to be the people who could run this place. We can always go find programmers when we need them."

On most projects, Mazda IT employees serve as lead analysts and subject-matter experts, while contractors do the actual coding. "While they're off doing the coding, our staff will be working on other projects. We try to prioritize so that there's a focus on a primary project and there's always a secondary project they can work on at the same time."

But when crunch times really hit, such as during model year changes or the beginning of the fiscal year, Mazda can increase contractor participation. "If we find we are out of good systems analysts, we'll take one of the smaller projects, package it up and have one of the vendors do it from soup to nuts," DiMarzio says.

When that happens, "we insist that there be fixed-price bids on those projects," he adds. "That helps make sure they stay within their time frames and pay attention to the projects. It's not a never-ending supply of money coming their way."

Mazda also gets the most benefit from its contractors by having one or two representatives of each service provider on-site, so they can get to know the company. That's important, because Mazda has its own methodology for tech projects and insists that contractors follow it.

Some contractors have become virtual employees, working on-site on an ongoing basis. "There are enough projects that we always keep them fully occupied," DiMarzio says. "We want to keep them on our account rather than someone else's account." And when IT is ready to hire someone full time, they're ready and usually willing, says DiMarzio, adding "I've converted some contractors to employees."

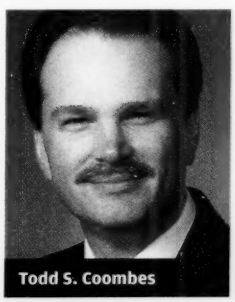
– MINDA ZETLIN

expert is. You may have a developer who's good at development work and an architect who really understands how a system is put together. But to meet the demands of the business, you have to have people who really understand the needs of the business. Those are the people who are hard to find and to hang on to."

That's why Coombes and his team sometimes review the time commitments of specific individuals when planning projects. "We ask who do we need on this project to guarantee it will be successful? A certain key individual might be needed on two or three different projects at the same time, and that creates a constraint that's difficult to deal with."

At the company with the overworked IT department, Gilmore says management had been addressing that issue with a bit of magical thinking: There were only two managers in application development so their names appeared on every project. "Any time anything new came in, one of them got put on it," Gilmore says. "They were listed to all these action items, and one of them alone took six months!"

When IT shops face such situations, there's a danger that people may wind up in roles they can't handle. "Your bottleneck might be the business analyst," says Handler. "Offshore you can get a double Ph.D. for next to nothing to do the technical work, so a lot of companies send that work overseas and keep their business analysts as busy as possible. Then when they get overloaded, they say, 'Let's get Bob to do it. He's in IT finance — that's like a business analyst.' And then Bob makes a big mess."


Todd S. Coombes

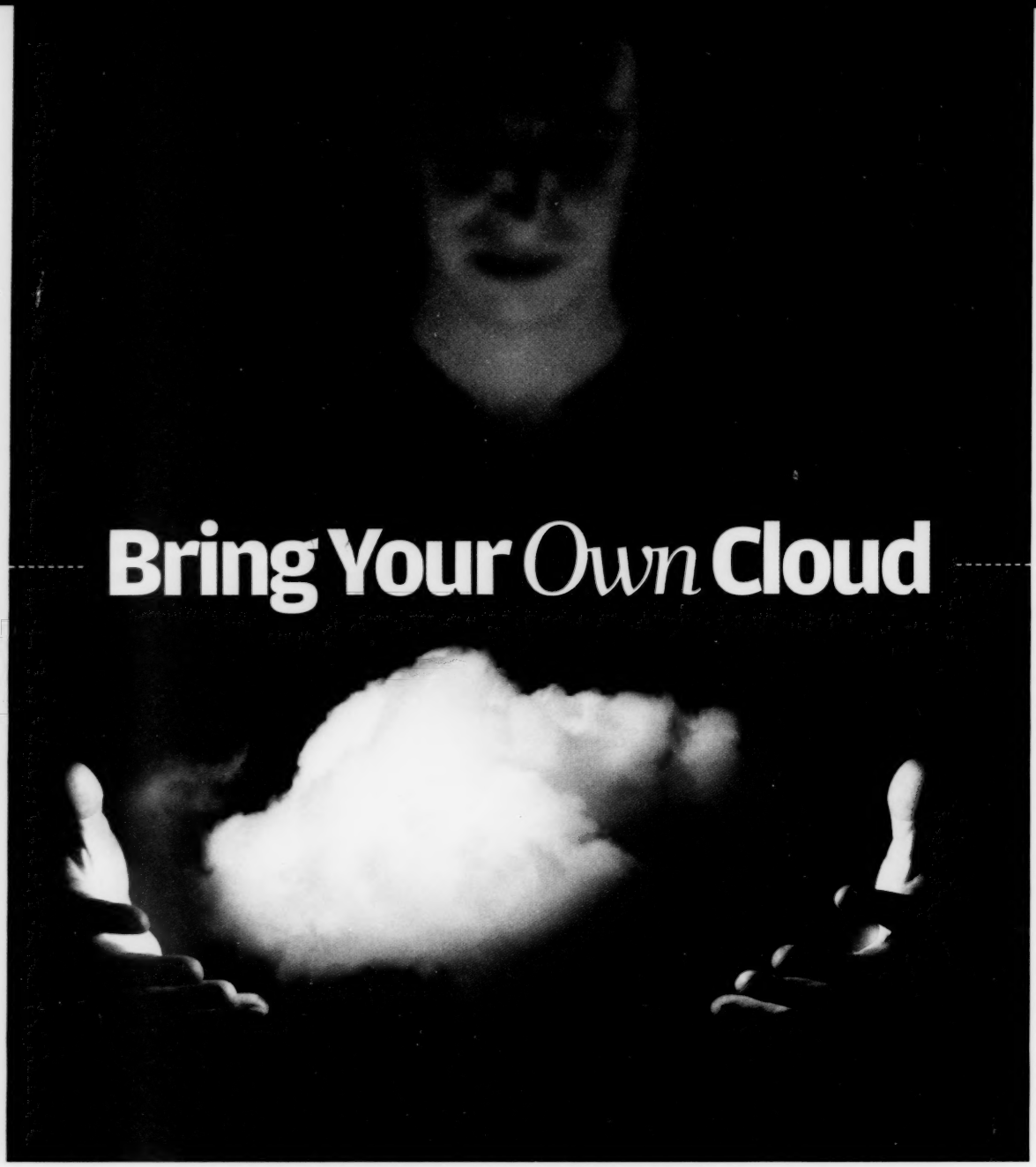
The only solution, Handler says, is to know what your department's limitations are and respect them. "Most of the time, the constraining resource is humans, and a good portion of the time it's humans with technical skills. Sometimes it's cash. On rare occasions, I've seen it be conference rooms. But whatever it is, you've got to identify the constraining resource and stop approving things when it looks like you're out of that resource."

At Gilmore's client, the move to setting realistic limits seems to be working. "So far, so good," he says. "Projects are on track, resources are allocated, and people are happy."

The company's IT strategy is set for the rest of 2013, and it's planning for 2014, identifying which projects will need new hires or outside contractors. Meanwhile, business executives are learning to trust IT. "We're being honest with them and saying, 'Based on our workload, we can't get to you till nine months from today.'" Gilmore says. "But then after that period has passed, we're coming back and saying, 'Now we can start on this.' So they see it's working." ◆

Zetlin *is a technology writer and co-author of* The Geek Gap: Why Business and Technology Professionals Don't Understand Each Other and Why They Need Each Other to Survive. *Contact her at minda@geekgap.com.*

Bring Your *Own* Cloud



As personal and professional clouds converge, IT's mission to improve productivity while protecting corporate apps and data is getting tougher. BY ROBERT L. MITCHELL

BRING YOUR OWN DEVICE IS SO 2012. The next big push in the consumerization of IT is bring your own cloud. And just as when consumer devices poured into the enterprise, many IT organizations have already responded with a list of do's and don'ts.

The standard approach has been to forbid the use of personal cloud applications for business use, by offering official alternatives — the "use this, not

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that" approach — and to carve out separate cloud storage workspaces for business documents that can be walled off, managed and audited. But personal cloud services are difficult to control, and users are adept at going around IT if the productivity tools in their personal cloud can do the job easier, faster and better. IT wants a bifurcated approach to consumer and professional cloud apps and storage. But users don't work that way anymore.

Getting Around IT

Scott Davis, CTO of end-user computing at VMware, originally began using a personal cloud app for business after the IT organization failed to offer a viable solution that met his needs. Davis, who has speaking engagements all over the world and needs to share large multimedia presentation files, asked for an exception to VMware's email attachment size quota. IT responded first by suggesting that he pare down the content and then followed up by suggesting that he buy "a bag full of USB drives" to send presentations by mail. "That's when I started using Dropbox," he says. "IT has competition. People know what's out there and how to get the job done if IT doesn't help them." Gartner analyst Michael Gartenberg agrees. "IT has to deal not only with bring-your-own devices but bring-your-own services," he says. People will bypass even viable alternatives if they feel that the officially sanctioned professional cloud offering isn't equal to the task — or if they have a personal cloud app they like better. "If it's digital and it's consumer, it's going to find its way into the office. People will come up with reasons for using it," he says.

At construction management firm Skanska USA Building, employees are mashing up business and personal work on a wide range of personal cloud services, including Dropbox and Evernote. Today, says senior enterprise engineer Jeff Roman, "We don't control that." But IT is actively reviewing its options. "What are we going to limit? What can they access at work and at home?" he asks. Right now that's controlled by use policies that employees must follow as to what types of documents need to stay out of the cloud and what's permissible. For example, financial data "should never touch a cloud service," he says, nor should some documents relating to government projects.

But Skanska is also looking for an officially sanctioned cloud storage option. It is considering Microsoft's SkyDrive Pro, using Citrix's ZenMobile to provide virtual access to files stored on back-end servers, or using niche services such as Autodesk Buzzsaw, which puts construction design tools and documents in the cloud. "We don't need people using all of these different tools," he says, but any solution must be as easy to use as the personal cloud tools employees rely on. Otherwise, users are likely to bypass the official alternative. "It will be tough to find a one-size-fits-all solution," he says, "but we're working on it. I am hopeful that within the next year we will have one in place, whether that is on-premises or cloud or a hybrid of both."

Blurring the Lines

Organizations need to develop a three-pronged strategy for on-premises, off-premises and cloud, says Jim Guinn, managing director at consultancy PricewaterhouseCoopers. "You really need to pay attention to how you secure documents that are in someone else's cloud-based service," he says.

Roman says some documents just don't belong in popular

EASE OF USE VS. SECURITY:

The DRM Dilemma

LIKE MANY financial services companies, The Blackstone Group must tread carefully when it comes to providing mobile access to its internal documents. The private equity firm uses MobileIron for mobile device management, has a data loss prevention program to control the flow of documents and added WatchDox's data rights management software to control and monitor the use of its most sensitive documents.

WatchDox encrypts documents uploaded into it by way of a local MyWatchDox sync folder. When the document creator drops a file into the folder, WatchDox uploads it, encrypts it and distributes it to all of the user's endpoint devices, as well as to other authorized users based on the policies that apply to that folder. Users can view the document only if they use a browser plug-in or app that authenticates the user and controls and monitors what to do with it.

Blackstone, which installed the software and then became an investor in WatchDox (and now has a seat on the WatchDox executive board), mostly uses the tool for its "crown jewels," as opposed to everyday documents, says CTO Bill Murphy. Wider usage will come, he explains, only when DRM tools are as easy to use as personal cloud apps like Dropbox. On the plus side, tablet and smartphone users are accustomed to downloading apps, so the experience isn't much different from using Dropbox or GoodReader apps, he says.

But it's not for everybody. "There has to be a real value to security in the firm for WatchDox to be the solution," Murphy says, including a need to know who's using those documents, and where.

Blackstone has policies against using personal cloud apps for business functions and blocks user access at work to a few popular ones, including Google Drive and Dropbox. But Murphy doesn't force staffers to use WatchDox. Rather, he touts WatchDox's ability to sync documents across all of a user's devices and points out that it's more convenient than having to use a proprietary application to access and manipulate content.

"Anyone who believes we can completely shut users off from creating their own content from a variety of [personal cloud apps], well, that's a fallacy," he says. Instead, Blackstone teaches employees about the firm's document use policy and offers WatchDox as an option. "We're just trying to make it easier for them to do the right thing," he says.

— ROBERT L. MITCHELL

You don't have to do it alone with mobile development

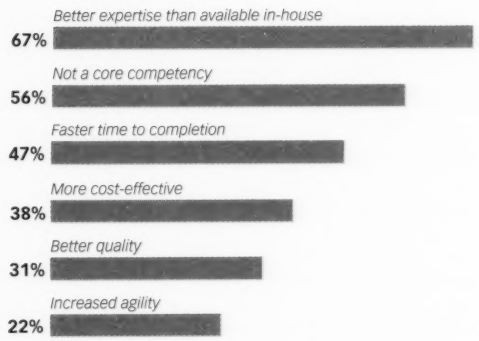
Market Pulse

SEEK A TRUSTED PARTNER WITH PROVEN EXPERIENCE AND EXPERTISE

While most organizations have developed a mobile strategy, the majority – 78 percent – say their strategies are at low to medium maturity. Why? Because mobility, with its highly specialized skill sets, fast pace and unique customer requirements, is a challenging market. Many organizations struggle with the complexity of mobile technology, the lack of in-house specialization and the speed required to bring a competitive product to their customers. But they don't have to do it alone. Many turn to mobile outsourcing as a solution.

The best vendors are organized and aligned to address the unique needs of the mobile landscape, allowing their clients to improve time to market, enhance their investment in mobile technology and position themselves for success.

Primary Reasons for Outsourcing Mobile Application Development



SOURCE: IDG RESEARCH SERVICES, JANUARY 2013

» Qualities of Effective Mobile Applications Vendor Partners

To maximize vendor partnerships, look for the following attributes:

» Organizations value a vendor partner that offers mobility as a dedicated practice, with the specialized talent in-house to keep projects driving forward. With a singular focus in mobility, these resources can deliver effective mobile applications.

» Next, partner with a vendor able to adapt without bias, as flexibility in support and delivery is critical in mobile development. The ability to support the full range of popular mobile platforms is daunting, and development across platforms, devices, screen sizes and versions is key.

» Look for a vendor that can deliver an end-to-end solution, meeting both consumer and enterprise demands across the spectrum of technical consulting, mobile development, mobile testing and mobile application support.

» Finally, turn to a partner that can provide guidance and clarity. A vendor that can leverage best practices and monitor processes to keep projects on track can help organizations effectively deliver on their mobile strategies.

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cloud storage services. "I've read the whitepapers on Dropbox and Box. I guess they're secure," he says. But for sensitive documents, he adds, "we don't want to risk it."

Even the issue of who owns business applications and how those applications are licensed is blurring. Evernote for Business, for example, adds a business services layer that includes policy-controlled business notebooks and adds business document libraries to the user's personal Evernote account. Personal and professional documents reside in different repositories but with a unified view.

"We're seeing a transition from two completely separate worlds to a world where there is no line between what's good for personal and what's good for business," says Andrew Sinkov, vice president of marketing at Evernote. And if the user leaves the organization, the account — sans business documents — goes with him. "This model is little understood but I think will have a profound impact," says Frank Gillett, an analyst at Forrester Research.

With Office 2013 and SkyDrive, Microsoft has taken a small step toward creating a unified view of the user's personal and professional worlds. It has created synchronized, local versions of the user's SkyDrive and SkyDrive Pro (SharePoint document library) storage repositories that exist as separate folders on the user's local desktop. In this way, Office 365 can create and modify documents in the cloud, Office 2013 can read and write to the same files in a local folder, and all changes will be synchronized. "There's a convergence happening from the user's point of view," says Microsoft storyteller Steve Clayton.

This strategy gets around the modal approach to personal and professional workflows — the two-car-garage model where the user must back out of one account bay and enter another to view and edit documents. Office applications can save to either folder. And if the user copies a document from his personal SkyDrive folder into the SkyDrive Pro folder, that file will be copied back to the cloud, where the policies for that document library will apply.

But only in the cloud. While IT can control which files users can sync with SkyDrive Pro, the cloud service can't control what users do with the locally stored versions of those files. Users either must work with sensitive files in the cloud only or use Office 2013's Information Rights Management feature to control forwarding, copying or printing of specific documents.

"Clearly, there's a lot of change coming where IT has to integrate these [personal cloud services] into the current stack and figure out how it will work together," says Amit Singh, president of the enterprise unit at Google, which in recent years has added enterprise features to consumer-based cloud applications such as Google Docs. With the latter, individual documents can be shared between the controlled, auditable professional account and the user's personal account. But Docs offers no unified document view. On the other hand, Google Plus, Singh says, "was imagined as a semipermeable layer where we add controls for the enterprise from the bottom up."

The Task at Hand for IT

But not all consumer-based cloud apps will necessarily be expanded to support enterprise security and compliance needs.

As the personal and professional worlds continue to blur, IT will have to adapt. Users will want to use some of their own personal cloud-based productivity tools, so for better or worse, IT will need to support mainstream personal cloud apps — including Dropbox, says Gillett. Going forward, he says, "you need to look at integrating employees' personal cloud apps and data in the same way you connect with business partners today."

Ultimately, IT will have to stop worrying about how to control which applications people are using or where documents reside and focus on protecting the documents themselves, says Gartner analyst Ken Dulaney. "Companies will just have to permit these things and take a different look at security," he says, adding that IT will eventually embrace digital rights management schemes such as Microsoft's Information Rights Management service.

> **These trends in consumer technology are so massive and supported by so many citizens that this is now the era of user-driven IT. It's not business-driven. The user gets to decide.**
>
> **KEN DULANEY,** ANALYST, GARTNER

"We're working with Microsoft on ways to support that in a mobile context," says Nicko van Someren, CTO at enterprise mobile management vendor Good Technology. But the market for the use of rights management servers to track and control content is still embryonic, he adds.

While DRM has a bad reputation among consumers, the systems could work for business, Dulaney says. He sees an evolution of products similar to WatchDox, which encrypts files that move outside of the enterprise space and requires that users have an authenticated reader app to view them. To this, IT might also need to add public key infrastructure systems and certificates, Dulaney says.

But if the idea of DRM seems unpalatable — and expensive — the convergence of personal and professional clouds could leave IT organizations with few other options for protecting truly sensitive documents. IT departments will also be faced with the challenge of maximizing convenience while protecting those documents in a world where those assets need to exist on and move quickly between many different endpoint devices.

"These trends in consumer technology are so massive and supported by so many citizens that this is now the era of user-driven IT," says Dulaney. "It's not business-driven. The user gets to decide."

Skanska's Roman says he has no illusions that he can ever completely control all of the applications and data created and shared in the cloud even though the company plans to offer official cloud alternatives and has strong policies about the use of sensitive documents. Yes, you can put policies and tools in place. But ultimately, he says, "you have to trust your users." ◆

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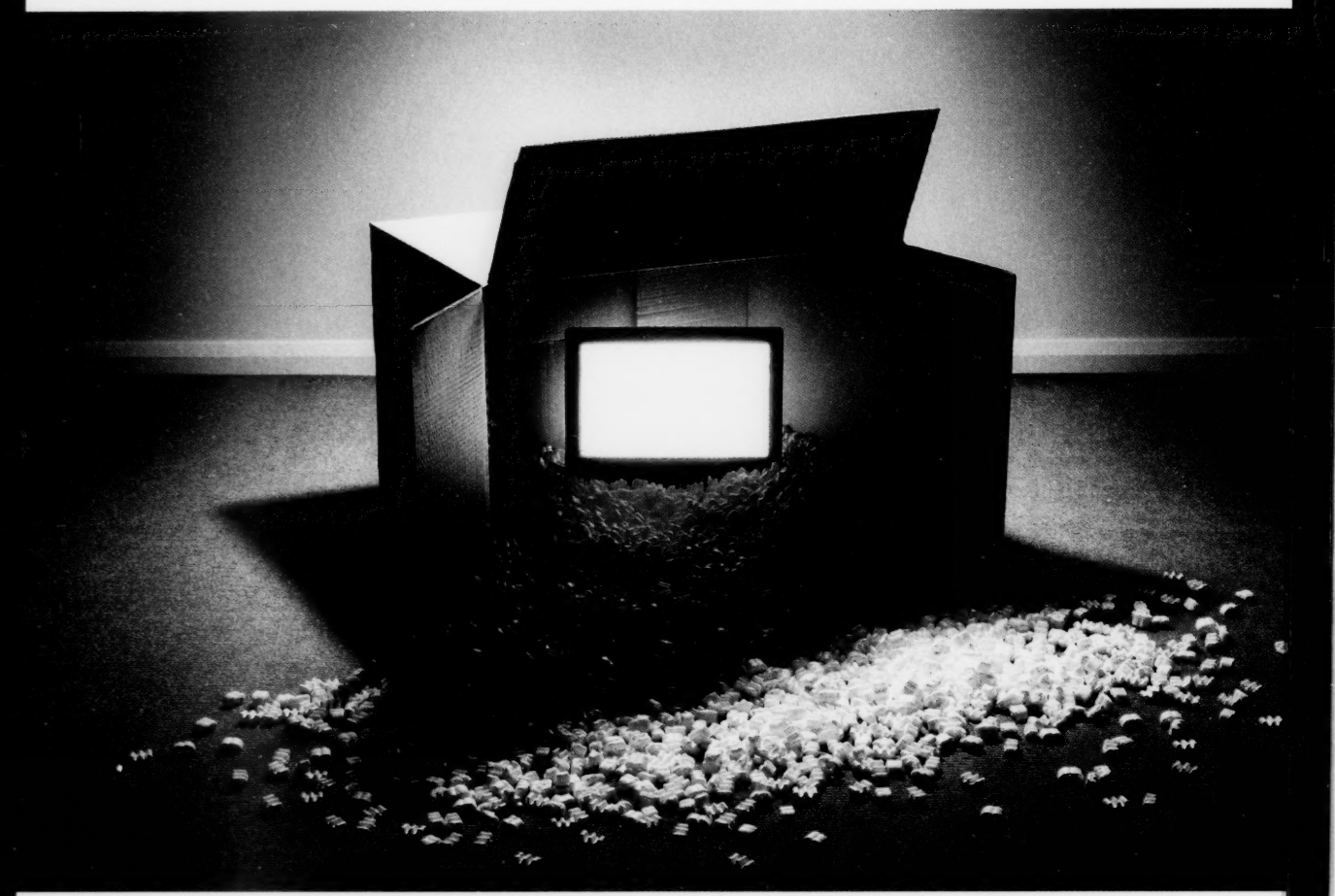

Build, Dismantle, REPEAT

KEITH ROBERTORY was staring down a project of epic proportions.

Last fall, as the East Coast prepared for Hurricane Sandy to strike, Robertory was planning to create and run an entire IT shop. He'd have only hours to organize staff and get systems running.

These CIOs know how to set up IT operations quickly and take them down just as fast. Here's what you can learn from people who work on the fly. **BY MARY K. PRATT**

NICHOLAS RIGG / GETTY IMAGES

He just needed to know where to go.

Robertory heads the disaster services technology group at the American Red Cross. It's his job to make sure Red Cross aid workers have the on-site technology they need to do their jobs, even when a hurricane takes out everything else.

"When most people go to an IT person and talk about disaster, they're picking up servers and running away. We're doing just the opposite. We're taking equipment into the disasters where infrastructure is the worst," he says.

Robertory has an unusual talent in a profession whose practitioners often talk about multiyear deployments: He can build and dismantle an entire IT department on the fly.

"We assume there's no infrastructure, [so we ask]: How can we get soup to nuts done?" he says.

Robertory and other IT executives who work in similar circumstances say the temporary nature of their operations forces them to focus on the essentials — the systems that their organizations need most in order to be as efficient and effective as possible. Their lessons on how to run successful IT shops in extraordinary situations can be applied in even the most ordinary of conditions.

Boxed and Ready

For Robertory, focusing on the essentials means quickly delivering the equipment and connectivity that aid workers need. Sometimes, like in the case of Hurricane Sandy, he knows up to a week in advance that his services will be required, even if he doesn't know exactly where they'll land. Other times, he has no warning.

Either way, he's ready to deliver everything from Windows laptops to networking gear. "Anything that you'd see in a normal office environment we have boxed up in ruggedized cases ready to go," he says.

Robertory keeps a mix of technologies in the cases to ensure that his teams can get something up and running fast. If land line phones don't work, for example, they can go with cellular or satellite. As part this modular approach, he adds new technologies that seem to make sense while retaining those that have performed well in the past.

The cases are shipped to disaster zones, where volunteers who make up Robertory's on-the-ground IT teams set up shop. In the Hurricane Sandy response effort, volunteers built the IT infrastructure at a staging area in White Plains, N.Y., and used satellite communications until they had data circuits pulled in. The setup was later moved to a vacant floor in a Manhattan building, where the Red Cross could use the existing network infrastructure.

The equipment comes with detailed instructions for volunteers to follow. Robertory says the goal is to have a clear, concise plan so volunteers don't get bogged down. "We have a 15-minute rule. If it takes you more than 15 minutes to figure something out, ask for help or [work on another piece of equipment]. We just keep moving. That's one of the secrets to our success," he says.

> **When most people go to an IT person and talk about disaster, they're picking up servers and running away. We're doing just the opposite. We're taking equipment into the disasters where infrastructure is the worst.**
>
> **KEITH ROBERTORY,** DISASTER RESPONSE EMERGENCY COMMUNICATIONS MANAGER, THE AMERICAN RED CROSS

Ready to Scale — Fast

Not surprisingly, speed is a common priority for most temporary IT shops. Just ask Michael Slaby.

Slaby served as CTO for Barack Obama's 2008 presidential campaign and as CIO for Obama's 2012 campaign for a second term. In the re-election effort, he oversaw the entire IT operation, from analytics to security, starting work in early 2011 and continuing through nearly all of 2012. He built an IT department that served thousands of workers in that two-year period — but he knew that it would all go away in the end.

"The challenge is, you're optimizing for very different things than you are in a permanent enterprise," he says. "It's hard to plan ahead, it's hard to know when you'll scale, but you know it will be big and it will be fast, so you have to optimize for speed."

Although speed was paramount, Slaby still had to keep spending under control and he had to guarantee that everything would work well. And he had to be sure he supported the organization's mission. "How does this help us win? That's the question we filter everything through," he says.

Slaby says understanding those parameters allowed him to make the decisions that worked best for his organization. He teamed up his engineering and infrastructure staff to ensure they worked together and integrated systems as quickly as he needed. He used cloud applications for almost all the Web infrastructure as well as other applications because he says it offered the speed and stability he required.

Those guidelines also helped him decide what he could skip, even if it meant violating standard IT best practices — it was, after all, a temporary shop. For example, Slaby says he built in security "but didn't get bogged down in the idea that we needed a perfect tool." He didn't develop a thorough disaster recovery plan but instead had redundancy only for some key systems. And he didn't offer training and development for staff or volunteers. "We didn't have time for hand-holding," he says, noting that he generally found people with broad skill sets more valuable than specialists who couldn't be moved when needs shifted.

A staff with a breadth of expertise is required, Slaby and others say, because these IT setups do indeed run enterprises, just as permanent IT shops do. While the infrastructure may have a much shorter life span, the need for it to operate smoothly is no less important in these temporary situations.

Putting on the Games

At the busiest point of his four-year tenure as CIO for the London 2012 Olympics and Paralympics, Gerry Pennell had 400 paid staffers, 2,500 contractors and 3,000 volunteers working in the IT operation he oversaw.

When he started in November 2008 with a debriefing from

Advice From the Front Lines

One of the powers of the Games is that it gives everyone a shared goal, to get to that end result. That's something you have to work harder at in other situations. Another takeaway: By having to box everything, you remove some of the traps that IT departments fall into — over-elaborating or putting in too many bells and whistles. That was something of a learning point.

— GERRY PENNELL, CIO FOR THE LONDON 2012 OLYMPICS AND PARALYMPICS

You have to figure out the balance for your organization — the balance between agility and stability. We tend to over-optimize for stability and that makes us less innovative as a result. Striking that balance? There's no magic formula; it's different for every organization and every culture. It's what's appropriate for what you're trying to do.

— MICHAEL SLABY, CIO FOR PRESIDENT BARACK OBAMA'S 2012 CAMPAIGN AND CTO FOR OBAMA'S 2008 CAMPAIGN

Find a way to get your technology people to understand and do the mission. Through disaster work, that's where I get our corporate technology people to feel passion about our mission. Day to day, they might be fixing computers, but if I ship them out to a disaster, they see the clients we're helping. You should be able to find something to be proud of wherever you work.

— KEITH ROBERTORY, DISASTER RESPONSE EMERGENCY COMMUNICATIONS MANAGER FOR THE AMERICAN RED CROSS

the team that had just run IT at the Summer Olympics in Beijing, he had about a dozen staff members and some support from the International Olympic Committee. He capped off his term in November 2012 by meeting with the team that will handle IT for the 2016 summer games in Rio de Janeiro.

Like any CIO, Pennell supported a typical office infrastructure that included accounting, email and knowledge management systems, among others. He was also responsible for the systems used in the actual athletic events and those that supported the needs and interests of participating athletic teams, journalists, attendees and fans around the world.

And just like other CIOs, Pennell says he had to determine where to incorporate new technologies and where to stick with more proven applications, and when to buy off the shelf and when to build his own tools.

"I started from a perspective to minimize risk as much as I could, so we went with proven technology as long as there was not a reason not to," he says. Pennell says he didn't want to risk a wide-scale failure with the whole world watching.

However, Pennell says he did incorporate new technologies into his enterprise, mostly for mobile systems, which he accommodated by building the world's highest-density Wi-Fi network in London's Olympic Park.

Pennell says the brief life span of his IT infrastructure generally wasn't a consideration when it came to choosing security systems. "If you can get technology working for a day, you can make it work for a year — and the reverse is true," he explains.

The shortened life cycle did, however, affect his implementation schedule. Like Slaby and Robertory, he didn't have the luxury of time. "Most organizations can roll out in drips and tweak as they go along," he says. "The Olympics mean that you're switching everything on on the same day. You have to be able to recover from situations when they occur. That's the big difference."

He worked backward from the endpoint to schedule deployment and testing to ensure everything would be ready by summer 2011, when preliminary events were scheduled. Such time pressures can test even the most experienced IT departments, and Pennell acknowledges that the tight schedule was one of the biggest challenges he faced.

"Most IT departments have a long history of how they do things and usually come up with written methodologies. We had none of that, and we had people from different backgrounds — retail, banking, the public sector — and no real shared way of doing things. And we didn't have time to invest in methodologies, so we put time into governance and communication," he says. "What it demonstrated for me is that governance and communication are more important."

During the Olympics project, Pennell says, governance was all about managing milestones, putting strict time frames around the work and making sure that everyone understood the goals and their roles in meeting them.

He says working for the Olympics was a big draw for people, so his team of paid workers, contractors and volunteers was motivated. Still, he made sure that his IT department had identified roles and responsibilities along with job descriptions and annual reviews. Understandably, they skipped long-term goal-setting, but Pennell and his team did map out how jobs would morph over the course of the four years as operations moved from planning to implementation to actually running the show.

His workers even got support when the enterprise was dismantled. As leased equipment went back to suppliers and purchased goods went back to vendors that prepared them for resale or donation, staffers worked with human resources professionals hired to help them write résumés and search for jobs.

It was a hard stop for the workers after all that racing, but Pennell says their Olympic performance proved they have stamina. After a run like that, he says, the day-to-day operations of the standard IT department don't seem so daunting. ◆

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MATHIAS THURMAN

Moving to Better Access Control

A NAC initiative so far has revealed a whole lot of devices that don't meet the criteria for getting on the network.

ANOTHER STEP in our relentless march toward better security: A couple of weeks ago, our network access control (NAC) initiative moved to initial deployment.

Our main goal with NAC is to restrict the access of unauthorized devices to certain segments of our corporate network. Several times, noncorporate devices connected to our corporate network introduced malware or were found to contain some of our intellectual property. We have a corporate policy that prohibits the use of personal devices on our network, but without NAC, we couldn't effectively enforce it.

With the initial deployment, we're focusing on end-user access points: the wired ports and wireless hubs in our offices, as well as the VPN. These are a higher priority than securing our production server networks and the engineering and test-and-development network segments in the data center. We'll get to those later.

We chose a NAC tool with a centralized management console that monitors every switch port on the VLANs serving our 50-plus offices around the world. With such far-flung facilities, this is more cost-effective than installing appliances at every location.

I'm sure you know how NAC works. Any device that connects to a switch port or authenticates to the network via 802.1x is interrogated before it is granted network access. Most of our authorized devices are Windows PCs. If a PC is seeking access, we first want to determine if it is a member of our domain. Next, we check that it's running our systems management software. For now, we're assuming that any PC that passes that test is up to date with patches and endpoint protection. Eventually, we might directly interrogate the device about those things, but for now we're going to be satisfied with this. PCs with the systems management software will be allowed to connect to the corporate network. Others will be halted and given some options: install the required software, be placed on a segmented network to facilitate that, or be given access to our guest network for limited Internet access.

JOIN IN the discussions about security! **computerworld.com/blogs/security**

"We have a policy that prohibits the use of personal devices, but we couldn't enforce it.

Trouble Ticket

» **At issue:** Network access control is ready for deployment.

» **Action plan:** Move slowly so as not to disrupt the business with sudden tight controls.

In practice, this means that if a PC is a domain member but isn't running the systems management software, we may elect to install the software. On the other hand, if a PC is not a domain member (for example, one that has been brought in from home or by a vendor's rep) but is up to date with patches and is running an antivirus client, we may decide to grant access to the guest network. That option would still give a vendor's rep access to the Internet in order to provide product demos.

Other Devices

We have a few corporate-sanctioned Linux machines and Macs. To control their access to the corporate network, we could install a NAC agent on each device, create exceptions by registering the devices' MAC addresses or obtain each device's SSH key so that the NAC tool can interrogate the device. As for iPads, iPhones and Android mobile devices, they will be routed to the guest network unless they connect via a VPN client.

At this point in our NAC deployment, we're only monitoring the activity and not actually enforcing network lockouts, so as not to disrupt business activity. It's a good thing, too, since a whole lot of devices are failing to meet even our initial security policy. In initial monitoring, more than 40% of the Windows PCs could not be properly interrogated. Many of them were domain members, but we could not determine if they were running the systems management software. This will have to be looked into, as will the plethora of Linux and Apple devices that are connected to the network but are not corporate owned. ◆

This week's journal is written by a real security manager, ***"Mathias Thurman,"*** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

Discussion Underway

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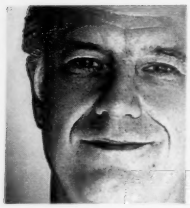

BART PERKINS

Avoid IT Audit Nightmares

Because of SOX, IT problems are now appearing in 10-Ks as 'material weaknesses.'

NO ORGANIZATION wants its problems announced to the whole world. In IT, when something goes wrong, our inclination is to tell the internal people who need to know while at the same time communicating our plan to resolve the problem. But such discretion is no longer viable. Because of regulations under the Sarbanes-Oxley Act, IT problems are now appearing in 10-Ks, as "material weaknesses." That phrase could indicate that enterprise financial data is inaccurate. Yikes!

The Federal Home Loan Mortgage Corp. (Freddie Mac) encountered this nightmare in its 2011 and 2012 10-Ks. Auditors stated that material weaknesses existed in Freddie Mac's internal financial reporting controls. The 2011 10-K acknowledged the weaknesses, asserting that they resulted from the conservatorship imposed during the financial crisis. The 2012 10-K stated that the 2011 problems were "related to our inability to effectively manage information technology changes and maintain adequate controls over information security monitoring, which resulted from increased levels of employee turnover."

Such public confessions attract unwanted scrutiny from executive management and the board. Their concern is well founded. Freddie Mac's 10-K filings contributed to a free fall of its stock.

Freddie Mac's IT challenges are hardly unique. In its 2012 10-K, it stated, "Our core systems and technical architecture include many legacy systems and applications that lack scalability and flexibility." Later, Freddie Mac added that its accounting systems "lack sufficient flexibility" and went on to explain that "this requires us to rely more extensively on spreadsheets and other end-user computing systems."

If any of this sounds familiar, start addressing the issues now to prevent being cited in a future 10-K. Here are some ways to do that:

■ **Take audits seriously.** Annual audits assess incident management, change management, availability management and other internal IT controls, resulting in a list of "findings." But auditors often fail to assign relative importance to those findings, leaving IT to set priorities. Because fixing audit-related issues generally receives far less emphasis than other projects, the same issues might remain on the list for years. This is a mistake. Change your attitude, and consider the audit an opportunity to determine how well IT functions and supports the enterprise.

■ **Develop an "insurance" business case.** One thing that puts projects that address audit findings on the back burner is that they don't directly affect profits. That makes them unsuitable to a traditional business case structure. You need to make an "insurance" business case, arguing that an investment is warranted because the impact of a potential event is so catastrophic. This approach, commonly used for SOX compliance and business continuity plans, can be used to justify funding necessary to address known IT weaknesses.

■ **Reinforce IT's operational importance.** Most executives and board members know that financial, HR and other operational systems depend on IT. But those systems aren't sexy, and they aren't market differentiators, so they tend to be taken for granted. Big mistake. When roads and bridges deteriorate, transportation slows. Similarly, crumbling operational systems slow the enterprise's ability to do business on a day-to-day basis.

IT material weaknesses in a 10-K paint a bull's-eye on the CIO's forehead. Top management might even decide it's easier to outsource IT than to fix it. Not good. Identify and correct IT issues *before* they land in the public eye. Or start updating your résumé. ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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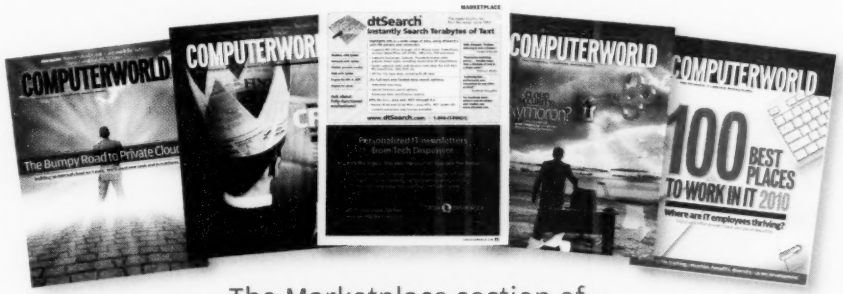

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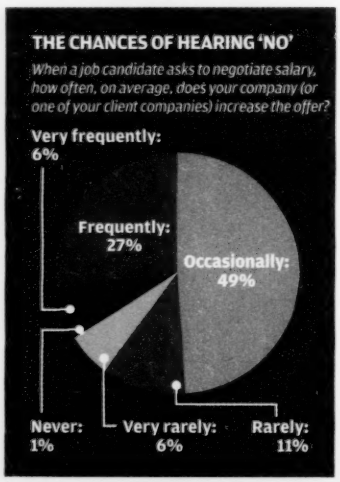
Career Watch

"You can't buy me with kibble ... it will take kibble and bits."

FOTOLIA

The Value of Haggling

Most IT professionals are not in the habit of negotiating salary when accepting a new job offer, according to Dice.com. In the April issue of the Dice Report, Tom Silver, senior vice president at the job site, said that most of the 838 hiring managers and recruiters that Dice asked about this said most tech professionals accept the first offer, with no haggling. Silver noted that when the hiring managers and recruiters were asked how much they increased the salary offer, on average, when a job candidate negotiated, the most common response was 5%. That, he calculated, adds up to over $4,000 for an IT pro making the average U.S. salary.


THE CHANCES OF HEARING 'NO'
When a job candidate asks to negotiate salary, how often, on average, does your company (or one of your client companies) increase the offer?
Very frequently: 6%
Frequently: 27%
Occasionally: 49%
Never: 1%
Very rarely: 6%
Rarely: 11%

Q&A

Peter Cannone

The CEO of OnForce on the technology ***consulting*** *workforce.*

Is the IT contracting workforce growing? Business growth uncertainty has greatly accelerated companies' use of the IT contract workforce, and we expect this trend to continue. A recent study by MBO Partners forecasts that independent workers will account for more than 50% of the workforce by 2020. At OnForce, we see about 700 applications from service techs each month – and this is purely from word of mouth, no advertising.

When the recession hit, many companies had to lay off staff, and those that held on to idle employees racked up significant losses. The memories are vivid and personal. Now these companies have low confidence in their ability to predict what the future holds. As a result, independent workers and small IT companies have become a key part of how work gets done, greatly increasing the demand for (and number of) IT contractors.

Is the economy behind the growth, or is it something else? The economy definitely drove the initial shift toward independent contractors, but tech innovation has taken the driver's seat at this point.

Service companies are taking on new types of work, such as mobile devices and networks, and they're using contractors to get it done. Companies can maintain a larger pool of technicians, tapping specialized experts for whatever key skills are needed for today's project, rather than relying on employee generalists.

What sort of IT professional is best suited for life as a contractor – that is, which skills are in demand, and what personality adapts well to the contracting life? For some, becoming an independent contractor is looking like a better choice all the time. There are three key factors for this: desire for independence, erosion of the employee value proposition (e.g., lack of job security, disappearing pensions, threatened healthcare coverage) and the rapid pace of technological change.

In fact, one of our most recent surveys with our community of independent contractors uncovered that 60% of them willingly joined the independent workforce, and 56% wouldn't consider working for someone else, even if the salary and benefits were comparable.

Every prospective independent contractor needs to be honest with himself about whether he has the necessary technical know-how. He also needs to be up for the challenges of finding work and making sure he gets paid in a timely way for the work he has completed.

In addition, independent contractors need top-notch listening and problem-solving skills, as well as a true passion for what they do. The job involves dealing with new tasks, a wide variety of customer demands and unexpected problems daily. Contractors have to be up for anything to build a successful business.

Perhaps even more challenging is keeping pace with technology. Independent contractors have to supplement existing skills with new ones on a regular basis – and to stay focused and current, they really have to love what they do.

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User Interface Designer (Venice, CA) **#1615.4996** Define the user model and user interface for new and existingGoogle products and features. Exp incl: Adobe Photoshop, Illustrator, Dreamweaver, After Effects, Acrobat, OmniGraffle, & Flash; Microsoft Office sw; create prototypes w/ Jscript, jQuery &/or Hype; HTML5; & CSS3.
SW Engineer (Venice, CA) **#1615.3807** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: C++; Linux and UNIX; Python, Java, & Matlab; Computer Vision; & mach learn.

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Ad Serving Technical Specialist (San Francisco, CA) **#1615.3564** Function as the internal or client-facing Google product expert. Exp incl: Python or Java; SQL; & HTML, HTTP Protocols, & Jscript.
Software Engineer (San Francisco, CA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.5228** Python; MySQL; Linux syst admin; backend appl monitor & troubleshoot; Apache HTTP Server or nginx HTTP Server; Algorithms; sw design; & Restful API design.

Electronic Engineer (Embedded SW) (Springfield, TN): Design & dvlpmt of new software for advanced induction cooking product as well do maintenance activities for induction products already in production. Create reliable & cost efficient SW/HW sclutions in compliance w internal & external dvlpmt guidelines. Ensure syst design is in compliance w safety & EMC standards. Create SW architecture, technical specs & SW dvlpmt documentations, as well as EMC tests & power performance of induction generators. Observe electronic market & trend of induction tech & ensure success of new components & new tech integration in products. Reqmt: Master's degree or equiv in Electronics, Electrical Engg, Comp Engg, or rel field. 2 yrs of exp in job offered or rel occupations of SW Engineer or Electrical Engineer. Exp must include SW design & development in embedded system & firmware, embedded C & assembly language. Exp must also include SW project, HW/SW integration, debuggers, simulators & analyzers in embedded SW dvlpmt. Exp in SW dvlpmt of PC-based simulators & test tools, as well as SW evaluation & function validation required. We offer competitive salaries & benefits. Please email resumes to mike.norton@electrolux.com.

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Software Engineer in Test Positions (Mountain View, CA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.5499** dvlpmnt of diagnostic & monitor syst; design & dvlpmnt of test & production sw of prototype hw syst; dvlpmnt of distrib test & report syst; code reviews; program in C, C++, Python, or assembly; srvr-class CPU architectures; UNIX or Linux; device drivers; file syst; & firmware. **#1615.4203**; C &/or C++; Jscript; Java; STL & Linux; & algorithms.
User Experience Researcher (Mountain View, CA) **#1615.775** Research user experience aspects of Google products. Exp incl: integration of user research into prod designs & design practices; SQL, Python, SPSS & remote usability test tools, incl Keynote or UserZoom; & stats and principles of experiment design.
Partner Technology Manager/Product Manager (Mountain View, CA) **#1615.1037** Take responsibility for Google Product from conception to launch. Exp incl: dvlpmnt of Internet Prod & technologies, incl ntwrk technologies, incl XML, HTML, Jscript, Unix or Linux; program lang, incl C,C++, or Java; & work in customer-facing role.
Test Engineer (Mountain View, CA) **#1615.755** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: dvlpmnt &/or test automation; C, C++, C#, or Java; Python, Perl, or Shell; & web-based appl automation.
User Interface Designer (Mountain View, CA) **#1615.2474** Define the user model and user interface for new and existing Google products and features. Exp incl: design across multiple devices & pltfrms; Apple iOS or Android UI guidelines; CSS & HTML; & Adobe Photoshop or Fireworks.
Site Reliability Engineer (Mountain View, CA) **#1615.5431** Provide software engineering and diagnostics expertise necessary to ensure full availability of Google online services. Exp incl: Linux or Unix; syst eng'g; sw dvlpmnt; & diagnostics& perf optimization in ntwrk protocols, real-time syst, & virtual mach.
SW Eng Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl: **#1615.5169** oo analysis & design; Java; Jscript; HTML; CSS; Ajax; HTTP; Python; Android dvlpmnt; Closure Library; Soy template; & Closure Stylesheets.
#1615.4833 oo program using C++, Java or Python; distrib high availability syst; & operate syst, incl UNIX, Linux or Windows; & ntwrkng
#1615.4838 program skills in Object-C, C++, or Java; mobile appl dvlpmnt; oo prog analysis & design; algorithms & data struct; UI frmwrks on mobile pltfrms, MVC appl design & complex, reactive touch based UI; database & object-relational mapping design, analysis & implement; & client-server prog, incl API design & implement.
#1615.4635.1 dvlpmnt of sw syst; troubleshoot & maint of existing syst; mgmnt of prod lifecycle f/requirements to user adoption, incl requirements gathering, translations to functional specs, & design creations; & implement syst in oo lang using web related protocols & specs.
#1615.4060 mach learn tasks; data analysis; C++; parallel computation; & data struct.
#1615.451 Java; C & C++; SQL; appl program interface design; debug & fix large-scale distrib syst; algorithms & data struct; multi-thread syst design & implement; database syst; oper syst; syst security; ntwrk infrastruct; test-write; & REST syst.
#1615.1457 embed sw; embed controllers; USB architecture & hw; power mgmnt & optimize; & driver support, optimize, test & debug x86 & ARM laptop/mobile pltfrms.
#1615.2135 web srvrs; User-facing interfaces; C & C++; Java & Jscript; multi-thread program; HTML5; CSS3; large-scale distrib compute; algorithms; natural lang process; & syst design & optimization.
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Software Engineer Positions (NY, NY) Design, develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.1091**; web dvlpmnt; client-side technologies; internet browsers; web perf; web standards; stat analysis on large audiences & datasets; & C++, Jscript, & Python.
#1615.4095 highly-spatial data; optimize & visualization; oo program & multi-thread syst; C & C++; Python, Git, & Java; & web dvlpmnt, incl HTML, CSS, & Jscript.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: Keeshia Moultrie. Please reference job # below:
Software Engineer Positions (Kirkland, WA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:
#1615.1250; C, C++, Java, or Objective-C; multithread; oo program; dvlpmnt of high-perf code; data struct; & algorithms.
#1615.975; C, C++, Java, Python, XML, & HTML; algorithms design, analysis, & implement; oo design; & design & implement large scale web svcs.

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Business Systems Integrator (Mountain View, CA) **#1615.5802** Design analytical solutions that answer complex business decisions. Exp incl: implement, configure, customize & integration of 3rd-party sw solutions; dvlpmnt of business applications end-to-end, incl front-end, data storage, & application integration; Java & SQL; UNIX &/or Linux; Perl, Shell, Python, or XML; & Oracle's application technology stack.
Network Engineer (Mountain View, CA) **#1615.656** Identify technical issues on Google's networks and determine appropriate short term and long term solutions to mitigate service impacts caused by these issues. Exp incl: troubleshoot & support Cisco &/or Juniper routers & switches; OSI, TCP/IP, PPP, VRRP, HSRP, Frame Relay, & SNMP protocols; VLAN, STP, ARP, VTP, WLAN, ICMP, & ISDN; ntwrk routing protocol troubleshoot in BGP, OSPF, IS-IS, & MPLS; Unix &/or Linux syst admin; & shell script & C program.
Technical Account Manager (Mountain View, CA) **#1615.3899** Provide technical support for Google's strategic partners to ensure the development and launch of new company products. Exp incl: internet prod & architecture; XML, HTML, & jscript; UNIX &/or Linux; syst architectural design; C++, Java, &/or Python; & prog mgmnt.
Software Engineer in Test (Mountain View, CA) **#1615.3136** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: MapReduce; compressed & high perf data storage syst; AppEngine; Java; jscript; C++; Python; & Unix or Linux.
SW Eng Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:
#1615.2817: stat data analysis; backend features; design solutions; binary & data analysis; & writing codes.
#1615.4856 algorithm design & implement; design & implement systems in an oo lang; C++ & Java; mach learn for data extraction; & natural lang process.
#1615.4220: C, C++, Python, Java, HTML, & SQL; multithread & parallel program; oo dvlpmnt; parallel & distrib computing; & large-scale data process info extraction.
#1615.1257: design & analysis of computer algorithms & data struct; multithread program; C, C++, or Java; Python, Perl, Shell, or PHP; & UNIX or Linux.
#1615.4866: optimization algorithms in mid-level optimization & backend code generation; perf analysis & tuning; adv computer architecture, incl x86 & ARM; Linux kernel & runtime library; C &/or C++Python; & syst troubleshoot & debug.
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#1615.3539 C, C++, Python; Linux program, hw program; multi-thread & multi-process applications; inter-thread & inter-process communications; kernel program; ntwrk/socket program; device driver dvlpmnt; Linux shell program; agile sw dvlpmnt;& computer ntwrkng.
#1615.4351: C, C++ , Java, or Python; algorithm design, data struct, & syst design; distrib computing, info retrieval, data mining, multithread, or mach learn; sw sys design, dvlpmnt, deployment, & debug; Unix &/or Linux; & TCP/IP.

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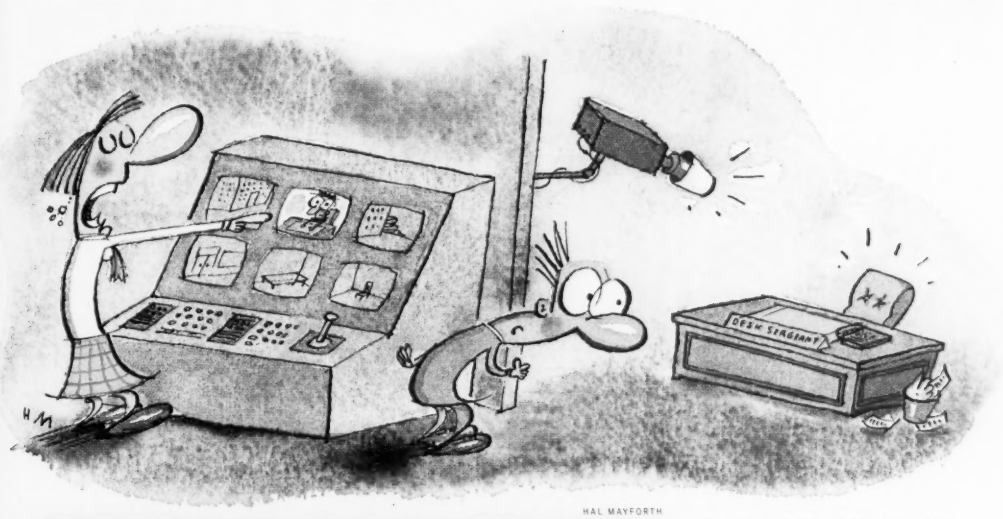

HAL MAYFORTH

Ghost in the Machine

It's a few years back, and at this county jail an IT pilot fish is finishing up a support call when he notices something peculiar. "The camera outside the sheriff's dispatcher's office, which was pointed at the booking sergeant's vacant desk, had a white Styrofoam cup stuck over the lens," fish says. "I asked the dispatcher if she could see the booking desk OK." She checks her bank of monitors and says it looks fine. Let me see, says fish – and sure enough, on the bank of monochrome monitors he can see the fuzzy image of a figure in the chair. But fish knows there's no one in the chair. He removes the cup. The image is about the same. "We discovered that a static image had been burned into every one of her monitors," says fish.

"The image of the booking sergeant we saw was a composite of all the sergeants who sat in that desk for the past three years. All the monitors had to be replaced and put on a rotation schedule. No one told the prisoners anything about it. We hope."

Oops!

Service tech gets a late-evening call to fix something at a customer's office, but when he arrives he finds everything has been shut down for the night. "He had the night watchman open the data center and power up all the machines," reports a pilot fish in the know. "Sure enough, he found that one of the machines wasn't working. He repaired it, and since it wasn't on maintenance he wrote up a bill and left it on the supervisor's desk. When going to dinner later with the other techs, someone asked him what the problem was at ABC Inc. He said he didn't know, because he had just fixed a problem at ABZ Corp. Checking with dispatch, he realized he went to the wrong company. He had to go back to ABZ, wake up the night watchman, destroy the bill and then go to the correct company, ABC, where they wanted to know what took him so long to get there."

Probably Not

User calls this pilot fish with a fairly standard complaint: Her computer just died. "I ask her if her monitor is on and explain that she needs to look for the green 'on' light," says fish. "She tells me that she doesn't see any light. I ask her to check to see if the computer is on – another green light, on the box where the CD is inserted. She doesn't see any lights there either. She then tells me that in the cubicle next to her the computer also died. She says nothing is working in the cubicles. I tell her that she needs to contact the facilities department to get the power turned back on to the cubicles. She agrees to do that. Then she asks if I can get her computer going until facilities arrives."

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PAUL GLEN

Keeping Processes Vital

As long as a problem seems present, gnarly and intractable, we enjoy following the process that solves it.

PROCESSES SEEM TO COME AND GO. Too often, though, they wither away from disuse when they still have value. How can we ensure that our staffs remain engaged with worthwhile processes?

Consider the life cycle of the typical process. It usually is created as a response to some organizational trauma, like a major project failure. For a while, everyone embraces it, testing, tweaking, celebrating successes and mitigating inconveniences. But eventually, enthusiasm wanes. Urgent needs come up, and people decide that, just this once, a shortcut is justified. The decay begins. Before you know it, the process is forgotten, a new trauma occurs, and the cycle starts again.

Each time it happens, we feel terrible. But when we better understand why we let this happen — how much human nature has to do with it — we can interrupt the cycle.

Human motivation isn't all that mysterious. We tend to focus our attention on what feels good. And for us as geeks, solving problems feels really good. We love to roll up our sleeves and analyze problems, and we glory in the thrill of solving them. So a new process feels good because we're solving a problem: "Why did the project fail, and what can we do about it?" As long as the problem seems present, gnarly and intractable, we enjoy following the process. But once a problem has been solved, it's not so interesting to us anymore.

Eventually, we follow the process because we are obliged to. We start to think of it as rules to follow rather than a solution to our problems. Our inner schoolchild starts to rebel. Some of us might start to unconsciously solve a new problem: "What is the minimum process that I can follow and still deliver an acceptable outcome?" Others get caught up in the more immediate rewards of short-term problem-solving. Solving an urgent problem is more rewarding than following a process because the joy of its solution comes immediately. When following a process feels bad and avoiding it feels good, it's no wonder things unravel quickly.

If you want to keep off the process merry-go-round, you'll need to fundamentally change how you as a leader think and feel about the rewards of following processes. You've got to give the team something lasting to care about. The key to that is at the very beginning of developing a process. In short, create processes that achieve a vision, not ones that just solve a problem.

A process has to speak to something bigger than the last problem you encountered, so that adherence to it lasts longer than the removal of symptoms. The joys of achieving a vision are somewhat different from those of solving a problem. Problems give way to forgetfulness when their noxious symptoms have been removed. A vision is more long lasting.

You might liken it to marriage. Most people get married not to solve a problem but in pursuit of a vision of sharing a life together, perhaps starting a family. If you get married to solve a problem rather than to pursue a vision — because it's the easiest way to obtain wealth, say, or because you want your child to have married parents, or because your visa is about to expire and you don't want to leave the country — the chances are the marriage won't last. The same is true of processes.

Whenever you talk to your group about a process, focus on the first principles of your vision. As people come to recognize the role of the process in achieving that vision, it will become self-sustaining. ◆

Paul Glen, CEO of Leading Geeks, is devoted to clarifying the murky world of human emotion for people who gravitate toward concrete thinking. His newest book is *8 Steps to Restoring Client Trust: A Professional's Guide to Managing Client Conflict*. You can contact him at info@leadinggeeks.com.

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